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WE GUARANTEE, that of this issue more than 9,200 copies were printed; that of those more than 9,200 copies, 7,535 were mailed to regular paid subscribers to the Railway Age Gazette, weekly edition, and Railway Age Gazette, Mechanical Edition; 224 were provided for counter and news companies' sales; 241 were mailed to advertisers and correspondents; and 1,200 were provided for distribution at Atlantic City.

The report on the testing of materials and the action taken regarding it are a good deal like the operation of many

Testing of Materials

machines. They may be automatic and all that, but they need a skilled attendant. So, while there were no fundamental changes in the specifications, they needed and received a little adjusting touch here and there—minor matters, but important. The raising of the testing temperature for rubber hose was a little thing, but will probably do much to cure the trouble with stiffening hose in cold climates. The increase in the weight of tups for the drop tests of large axles was a physical necessity. And so through the minor changes that were suggested. It means that the committee will always be obliged to be on the alert to meet the varying exigencies of practice and experience, and that the specifications will never be completed.

It certainly looks now as though formal work would be started before long on the design of a standard box car.

The Standard Box Car

Notice was practically served on the Association Friday morning that it would be asked by the American Railway Association to do this work. No one expects this to be done in a day, or a year, but with it once undertaken, we will be coming nearer and nearer to it, until it looms up in the immediate future as the standard coupler does today. The old song in the "Pirates of Penzance" as to the unhappiness of a

policeman's lot will apply with accrued interest to the car construction committee when it has settled down to this task. Its intricacies, and the involved interests and prejudices are so manifold that the solution of the problem takes on a succession of difficulties as the work is considered and approached. But, somehow, these associations have a way of solving problems of a magnitude that would overwhelm men less prepared to handle them. We can rest assured that when the thing is done it will be well done, if not quickly.

A point was raised in the discussion of the report on car construction that is largely lost sight of in the general consideration

Freight Car Construction

tion of the proceedings of the association. It was suggested that certain recommendations of the committee be submitted to letter ballot for adoption as recommended practice. Objection was raised to this and the counter proposition was made that the report be received as a report of progress. And here came in the point referred to. Mr. Crawford made it clear that any adoption of a suggestion as a recommended practice was merely the formal recognition of the work of the committee making it as a real work of progress that has met with the approval of the association. Recommended practice is not set up as the best that can be done, but as a good guide—a practice that is worthy of trial, but one that will probably deserve and receive many changes and amendments before it will be advanced to the dignity of a standard. It is a notice that thus far has the association progressed in the development of a certain construction and appliance, that it ought to be given a trial and then judged upon its merits. In short, that recommended practice is merely a formal announcement that an acceptable report of progress has been presented.

It was urged not so very long ago that the young men in the Master Car Builders' Association should be encouraged

Young Men in the M. C. B. Association

aged to come to the front, and that they should be put on committees and given an opportunity to show their metal. Certainly they have had their chance and have availed themselves of it. They have presented reports, showing a thoroughness of investigation and workmanship that would not have been dreamed of even a few years ago. There is in them a wealth of technical detail that speaks in a language unknown to many of their predecessors, and an approach to a subject on a broad engineering basis that would have been impossible fifteen years ago. Yet this language is not that of some pedagogues who think in quaternions, and who have no idea of the relationship between a calculation and a piece of work, but it is the language of the man who knows from hard knocks and harder experience that a calculation, based upon a purely theoretical premise, is worthless as compared with the rough guess of a practical man. The trouble, in so far as "sessional" results are concerned, if we may coin a word to express what occurs in meeting, is that no man can intelligently discuss one of these papers unless he has taken the time to study and analyze it. This takes time, and so the head of a department delegates such an analysis to one of his reliables. The reliable applies it to the local conditions, cuts it to pieces, and looks at it from every point of view with that delightfully cold-blooded spirit of friendly criticism that belongs to the engineer, and then reports, in brief summary, the results to his chief. The chief accepts the summary and conclusions and acts accordingly. But when the matter comes up for discussion at the convention, he cannot speak with the detailed assurance of his subordinate, who has the whole subject at his tongue's end, and so the subordinate does the talking. It looks very much as though

the young man is having the inning which it was desired to give him, and to which he is entitled by his work as a committeeman.

If cars of less than 60,000 lb. capacity are to be retired from service some roads are bound to suffer more than others. Be-

The Retirement of Low Capacity Cars

cause of differences in the traffic conditions throughout the country, cars of 40,000 and 50,000 lb. capacity have been retained on some roads, while others have practically no low capacity cars left in service. It is not difficult to follow the lines of reasoning of those who object to the work of retiring these cars being carried out on the basis of capacity; unquestionably there are 60,000 and 80,000 lb. capacity cars in interchange service that are as much a menace to safe train operations and as great a cause of repair expense, as some of the cars of lower capacity. But when it is taken into consideration that there are in service only 120,000 cars of less than 60,000 lb. capacity, and that there is no question as to these cars being unfit to handle in the heavy trains of today, it is difficult to understand why any very strenuous objections should be raised to retiring the cars from interchange. There is nothing to prohibit any road from using them on its own lines if desired; but it does not seem reasonable to expect other roads to either accept the cars for movement in heavy tonnage trains or go to the expense of transferring the load. Regarding stock cars, Mr. Crawford stated that the committee's records show that there are only 2900 in service, of the lower capacities and it should not be a difficult matter to so strengthen many of these by October, 1916, as to meet the requirements. As to the 60,000 and 80,000 lb. cars that do not come up to service requirements, a large number of roads are strengthening these cars as quickly as possible and if the matter is kept to the front as much as possible, it is probable that the number of cars with short draft sills and weak underframe construction will to a large extent be eliminated in a few years.

Most of the convention visitors are familiar with the question of so-called "car spotting," which came prominently before the

An Interesting "Car Spotting" Decision

Interstate Commerce Commission during the hearings in the Eastern rate advance case. Louis D. Brandeis, special counsel for the commission, contended that the carriers ought to make a special charge for setting freight cars on private sidetracks, and that by means of this and other special charges which he argued they should impose they could get all the revenue they would need without a general advance in rates. The Supreme Court of the United States has just rendered a decision in the Los Angeles switching case which seems to knock Mr. Brandeis' theory into a cocked hat, and to render it necessary for the commission to increase the carriers' revenues by granting advances in rates if it is to do anything substantial for them. The railways entering Los Angeles imposed a special charge of \$2.50 a car for delivering carload freight to industries located on spurs and sidetracks within their switching districts. The shippers complained of this to the Interstate Commerce Commission, which ruled that delivery on a sidetrack was no more expensive than on a team track, that it was unfair discrimination to impose such a charge at Los Angeles when it was not made at a large majority of points on the Pacific coast, and that the charge must be abolished. Needless to say, the commission's ruling was widely at variance with the views subsequently expressed by Mr. Brandeis. The Commerce Court overruled the commission, but the Supreme Court now upholds the commission. This probably disposes for good of the plan for imposing special charges for setting cars on sidings; but the court expressly indicates that it does not mean that special charges may not be made for the rendering of such true special services as the switching of cars within the limits of industrial plants and so on.

GIVE THE CAR DEPARTMENT A SQUARE DEAL

WHEN we consider the men who have been responsible for the developments in car department matters in the past, and those who are engaged in working out solutions to the tremendous problems that are continually presenting themselves in present day car design, construction and maintenance, it must be conceded that the car department has not been lacking in the past, and does not now lack, in men of ability and foresight. These men are deserving of great credit for the work they have done and are still doing, the more so because they have worked out their problems under the disheartening conditions that obtain in a department that has always been considered a necessary evil and treated as such by the higher executive officers.

Any mechanical department man who has ever had charge of both locomotive and car work can bear testimony to the marked difference in the consideration given the two departments. The locomotive, because of its being the prime essential in the production of transportation, seems, in the eyes of many of our executives, to so far overshadow the car that, as a producer, the car is almost if not entirely, at times, left out of consideration. It seems almost inconceivable, yet it is very frequently the case, that the department that brings in the most money is given the greatest consideration at all times, while the department with less productive capacity but enormous possibilities for saving money for the company is taken into careful consideration only when it cannot be avoided, or when a general manager or vice-president deems it necessary to censure those connected with it. What has been accomplished in the car department has been achieved, not because of the co-operation and assistance of the higher officers, but in spite of their neglect and criticism.

The cost of maintaining freight equipment has developed to enormous proportions and yet how many railway managers are there who are willing to follow the advice outlined by their car department officers to keep this cost down? If such advice had been followed in the past the car problem would not be what it is today, and yet the policy persists in many instances of providing cheap cars and grossly insufficient amounts for their maintenance. The problem of car maintenance has not reached the point of solution, nor will it as long as railway managers persist in ignoring the car department whenever possible and in refusing to make ample provision for its needs. Cars are just as essential as locomotives to the successful operation of a railroad; transportation cannot be carried on without both, and the car department should be placed on a basis as broad as, if not broader than, any other department. To attain this end, one of the main essentials is the provision of good salaries. When we consider what has been accomplished in car work under the disheartening conditions that have obtained, how much more may reasonably be expected when men are given the incentive of reasonable and respectable salaries to work for.

It must be brought home to railroad executive offices that the men who can save money can be just as important as those who bring it in, if not more so; there is no greater opportunity in the railroad field for saving money than exists under present day conditions in the car department, but until that department is raised to the position it should occupy the possibilities will never be realized. Such a step would carry the railways a long way toward solving the problem of the high cost of maintaining equipment, because the recommendations of the car department experts would be adhered to in the purchase of cars instead of being overridden, and there would be a well-paid and consequently enthusiastic organization to look after maintenance matters.

TODAY'S PROGRAM**Saturday, June 13**

10.30 A. M.—Orchestral Band Concert, Entrance Hall, Million Dollar Pier.

3.30 P. M.—Orchestral Band Concert, Entrance Hall, Million Dollar Pier.

PURDUE DINNER

The annual Purdue University dinner will be held at the Shelburne tonight at 6.30. About 30 have already registered, and all Purdue men attending the conventions are urged to be present in order to have a record-breaking attendance.

FOUND

A shoebuckle in the form of a butterfly, studded with brilliants, was found in the entrance hall on Thursday night. The owner can claim it at the Railway Age Gazette space.

R. S. M. A. ANNUAL MEETING

The annual meeting of the Railway Supply Manufacturers' Association will be held in Convention Hall at the outer end of Young's Million Dollar Pier Saturday, June 13 at 12:30 p. m.

LOST

B. V. H. Johnson has lost his badge No. 2425. Finder please return to him at booth 313.

In the entrance hall on Friday afternoon, a green silk parasol with black and white striped border. Finder please return to Mrs. L. H. Albers, Room 908, Marlborough-Blenheim.

Badge 2684, belonging to J. E. Linahen, has been lost. Finder will please return to him at the Galena-Signal Oil Company's booth.

Badge 2677 has been lost by J. F. MacEnulty. The finder will please return to him at Pressed Steel Car Company's booth and receive a reward.

THE BRIDGE PARTY

One hundred and twenty ladies took part in the bridge tournament on the Steel Pier Friday afternoon. Six games were played, four hands round. The winners of the twelve handsome prizes were as follows:

Mrs. Felix M. Robbins.....	First
Mrs. B. F. Flory.....	Second
Mrs. G. A. Gallagher.....	Third
Mrs. H. M. Hitchcock.....	Fourth
Mrs. H. S. Noble.....	Fifth
Mrs. A. Turner.....	Sixth
Mrs. A. Telford.....	Seventh
Mrs. J. F. Dunn.....	Eighth
Mrs. C. D. Eaton.....	Ninth
Mrs. H. F. Deverell.....	Tenth
Mrs. Firmin.....	Eleventh
Mrs. Louis Turivas.....	Twelfth

Mrs. H. S. Noble and Mrs. Firmin can obtain their prizes from Mr. C. D. Jenks, Room 184, Hotel Dennis.

MEETING OF SUPPLY ASSOCIATION

The executive committee of the Railway Supply Manufacturers' Association calls attention to the importance of the election of the new members of the executive committee by the various districts on Saturday morning. The supply men should show their interest in the selection of good representatives on the executive committee by selecting able leaders in their districts and then voting for them at the polls, rather than by not attending the polls and then indulging in adverse criticism.

In yesterday morning's daily we published the fact that the nominating committee had nominated J. Will Johnson for president, and LeGrand Parish for vice-president. Upon notification from the nominating committee it was found that it would be impossible for Mr. Parish to accept the nomination as vice-president. According to the constitution of the association the nominating committee automatically went out of commission at midnight on Wednesday, and it therefore became necessary to nominate by petition before 6 o'clock Friday evening. A petition was hurriedly gotten up and Oscar F. Ostby was placed in nomination.

TRIP TO BALDWIN LOCOMOTIVE WORKS PLANT

An invitation will be presented next Monday morning to the Master Mechanics' Association for its members, and also the members of the Supply Manufacturers' Association, together with the ladies attending the conventions, to visit the Baldwin Locomotive Works plant at Eddystone, Pa., for the purpose of inspecting the Erie triplex locomotive and as much of the plant as time may permit.

The trip will probably occur on Tuesday afternoon, leaving Atlantic City shortly after 2 o'clock, and returning about 6.30 o'clock.

In order that satisfactory train accommodations may be provided, those intending to go are requested to leave their names and the number there will be in their parties at the booth of the *Daily Railway Age Gazette*. Definite announcement as to the time of departure will be made in the *Daily* on Monday morning, and from the convention floor.

THE RECORD YESTERDAY

So much interest has been stirred up by Joe Taylor's efficiency study, which was published in yesterday's *Daily*, that we immediately assigned one of our staff to follow up Joe and get similar diagrams for the Thursday and Friday proceedings. He was authorized to hold him up with a gun, or if necessary, to chloroform Joe. Unfortunately for our reporter it was found that Joe carries these diagrams in his shoe. After he went under the influence of the anaesthetic, in trying to unlace the leather thongs which held his boots on, they got tangled and so much time was lost that Joe gradually came to before the diagrams were abstracted. In the struggle which ensued the diagram was torn. We asked the engraver to try to reproduce it, but the small amount of time available did not enable him to make a good job of it. We hope for better luck next time, Joe. You certainly beat us out that time.

As we recall the diagram, or time study, the meeting started out under a heavy handicap. President Barnum is somewhat of a driver, however, and with the aid of his big gavel he started to make things hot and the difficulties in the way were rapidly overcome. The final outcome was most gratifying and we extend our congratulations for the splendid run which was made by the M. C. B. special on its three days' trip.

MEETING OF RAILWAY SUPPLY ADVERTISING INTERESTS

Supplementing the short announcement in yesterday's issue of the *DAILY RAILWAY AGE GAZETTE* there will be a dinner (strictly "Butch") at the Marlborough-Blenheim at 6 o'clock Saturday night. To the dinner are invited all those in the railway supply field who are interested in efficient railway advertising (whether buyers or sellers). Among the subjects planned to be discussed may be mentioned the following:

- (1) Constructive efficiency in railway supply advertising as evidenced in the copy service idea.
- (2) Constructive efficiency in railway advertising with particular reference to machine tool publicity.
- (3) Constructive efficiency in railway advertising as evidenced in the list-of-officials publication plan.

(4) Constructive efficiency in railway advertising as evidenced in the railway employees' magazines.

(5) Constructive efficiency in railway advertising as evidenced in proceedings of railway clubs.

(6) Constructive efficiency in railway advertising as evidenced in securing and holding the loyal and interested reader of railway periodicals.

(7) Constructive efficiency in advertising in the railroad field as evidenced in exhibits at conventions.

(8) Some actual results of advertising in the railway field (to be told by different advertisers).

(9) Round table discussion of various means and methods of securing efficiency in advertising in the railway supply field.

Remember the place, the Marlborough-Blenheim—the date, Saturday evening, June 13—the time, 6 p. m. sharp. The plan is to adjourn about 8.30. All interested in efficient advertising in the railway supply field are invited.

NEW LIFE AND ASSOCIATE MEMBERSHIPS

At the closing session of the M. C. B. convention yesterday, W. S. Morris, assistant to the president, Chesapeake & Ohio, and C. A. Schroyer, superintendent of car department, Chicago & North Western, were elected life members. C. A. Seley, of the American Flexible Bolt Company, and formerly mechanical engineer of the Rock Island Lines, was elected an associate member.

RAILWAY ELECTRICAL ENGINEERS' MEETING

The semi-annual convention of the Association of Railway Electrical Engineers was held at Hotel Dennis, Atlantic City, N. J., June 12, vice-president H. C. Meloy, Lake Shore & Michigan Southern, presiding. Progress reports were received from the following committees: Axle Equipment; Data and Information; Electric Traction; Head End Equipment; Illumination; Loose Leaf Binders for Specifications and Standards; Outside Construction and Yard Lighting; Wire Crossings; Shop Practice; Standards; Rules for Car Wiring; Wiring and Cables; Yard Facilities for Charging Storage Batteries and Lamps.

The committee on axle belting, J. R. Sloan, Pennsylvania, chairman, presented a final report including specifications for belting for axle generators which is abstracted as follows:

SPECIFICATIONS FOR BELTING FOR AXLE GENERATORS

All rubber belting shall have not less than four plies of friction duck and shall have a rubber cover 1-32 in. thick, of such quality and cure as to resist wear on the pulleys; the cover to be so firmly attached to the duck that it cannot be separated without tearing the rubber. Stitched or woven belting shall be impregnated with a water-proof composition.

Friction Test:—(Does not apply to stitched or woven belting.) A section 6 in. in length shall be cut from the sample, and from this a strip one inch in width shall be cut on the longitudinal axis of the belting. The friction shall be determined from this specimen, by weighing the pull necessary to start the unwinding of the duck. The test shall be made in a tensile test machine at a speed of 20 in. per minute. The pull in pounds necessary to start the separation of the duck shall be taken at three different points, and the average of these three readings shall be considered as the friction.

Stretching Test:—Marks 18 in. apart shall be placed on a 30 in. length of sample, using the full width of the belting, and it shall be pulled in a tensile machine with a slowly applied load in pounds equivalent to the product of the number of plies of duck, times the width of belting in inches, times 200. The load shall be maintained a sufficient length

of time to allow measuring the stretch between the 18 in. marks.

A roll of belting, as represented by the serial number, will be rejected if the width varies more than 3-16 in. either way from that specified on the order; when examined by the storekeeper it is found not to be straight or has any injurious defects; it does not bear the required badge plates correctly spaced throughout its length; the friction is less than 18 lb.; the stretch in 18 in. exceeds two inches, and the belting breaks under the stretching load.

The special committee on Lamps, L. S. Billau, chairman, submitted the following:

LAMPS FOR RECOMMENDED PRACTICE

Voltage Range	Nominal Watts	Mean Horizontal Candle-power	Type of Bulb
25 to 34	15	12	G-18½
and	25	20	G-18½
50 to 65	50	40	G-30

TRAIN LIGHTING LAMPS ACCEPTED BUT NOT RECOMMENDED

Voltage Range	Nominal Watts	Mean Horizontal Candle-power	Type of Bulb
25 to 34	15	12	S-17
and	25	20	S-19
50 to 65	75	80	G-30

The committee on Standards, D. J. Cartwright, chairman, in its progress report recommended the discussion of the following subjects at the annual meeting:

First:—That means be provided by the manufacturers of car lighting equipment to attach supporting lugs on the generators so that any type of standard generator can be applied to any standard type of suspension.

Second:—That some definite method be adopted to properly secure the battery box doors underneath the car.

Third:—That the truck builders be requested to submit drawings of trucks to the committee on standards of the association of the A. R. E. E. of such a design that a suitable suspension can be applied to the truck and afford clearances as called for by the M. C. B. Association, using a 20 in. and 16 in. axle pulley with 11 in. and 8 in. generator pulleys respectively.

Fourth:—That the truck builders be requested to submit drawings of brake beams to the committee on standards of the A. R. E. E. for both four- and six-wheel trucks. Brake beams both inside and outside hung, of such design that they will give ample belt clearance when using 20 in. and 16 in. axle pulley with 11 in. and 8 in. generator pulleys respectively.

The committee on head end equipment briefly described the Bohan Train Lighting system which is in use on the Northern Pacific. This system consists of an axle generator of 20 k.w. capacity placed in the baggage car at the head end of the train, this generator furnishing power for lighting the entire train. A more complete description of the system will be presented at the annual meeting. The installation above referred to has made very nearly 20,000 miles without a failure.

The committee on electric traction is planning to compile considerable operating information regarding electrically operated railroads and will describe the various systems that are in general use at the present time, together with reasons for adopting the particular system.

The committee on illumination presented a printed report of the day coach lighting tests made by the association at the shops of the Lake Shore & Michigan Southern at Cleveland. The committee will make a study of yard illumination.

The committee on shop practice will consider electric cranes, hoists, turntables, magnets, and dynamic braking, together with a study of air vs. electric driven portable shop tools for the annual meeting.

The secretary-treasurer reported a cash balance of \$1,349.22 and a total membership of 514. There were 72 members registered at this meeting. A paper on the use of the ampere hour meter in car lighting service was read by Edward Wray.

Master Car Builders' Association Proceedings

Damage in Unloading Machines; Material Specifications and Tests; Car Construction; Retirement of Light Capacity Cars

President Barnum called the meeting to order Friday morning, June 12, at 9:45 o'clock.

Secretary Taylor read the reports of the committee on correspondence and resolutions and the auditing committee, both of which were approved. He also made the following statement: At the convention last year the Arbitration Committee, under Rule 17, made the following recommendation: "The Committee concurs in the suggestion of Mr. Schultz, that a pamphlet be issued by the Committee on Standards, showing brake beams which meet M. C. B. requirements, these brake beams to be applied on all new cars built after September 1, 1914."

The list of brake beams which meet M. C. B. specifications is not complete, and your executive committee rather hesitates to send it out in this condition, but would ask the members of the Association if they will test the various brake beams, and in case of those which meet the specifications, that they will notify the secretary's office so that they can be included in the list that will be sent out a little later.

The arbitration committee presented two modifications in its report as read to the association with the suggestion that the executive committee include these changes in the report. One is under rule 3, paragraph (c), which reads: "Cars built after October 1, 1914, with journals or journal bearings other than M. C. B. standard," etc. It has been deemed wise to make that 1915. The other is under Rule 3, paragraph (g) which was made to read as follows: After October 1, 1915, "no car carrying products which requires the use of salt," etc. the words "built for the purpose of" being omitted. The changes were approved.

DAMAGE TO FREIGHT CAR EQUIPMENT BY UNLOADING MACHINES.

Much has been accomplished in reducing the damage to freight cars by applying the blocking to the movable platen type machines in accordance with the typical design submitted to the 1913 convention, and adopted as recommended practice.

A member of the committee called on the manufacturers of the machines of the solid floor type and suggested that they give some consideration to modifying the hydraulic clamping arrangement to eliminate the damage to cars. It was found that after receipt of the 1913 report they had done some preliminary work along the line suggested and would be prepared to submit drawings and estimates of changes in existing machines of the solid floor type, and further that no more machines of that type would be built and that future machines would be of the movable platen type.

It was also found that the steel manufacturers and industrial plants are taking a keen interest in the matter and had a committee of thoroughly competent members going over the individual machines, and were having blocking applied as per our recommended practice to movable platen type machines and corrections made to those of the solid floor type.

For existing machines we have no modifications of our report of 1913 to recommend, but would impress on all the need of properly spotting cars in the cradle, the importance of maintaining blocking by renewing face, the absolute necessity of maintaining extension clamps at all times and to properly supervise machines at industrial plants to insure their carrying out the recommendations of this association.

The report is signed by:—P. F. Smith, Jr. (Penn.), chairman; J. J. Tatum (B. & O.); I. S. Downing (C. C. C. & St. L.); J. J. Birch (N. & W.); P. J. O'Dea (Erie) and J. H. Milton (C. R. I. & P.).

In presenting the report, Mr. Smith said: "There has been no change in our recommendations, and we, as a committee, would recommend that the committee be discontinued, because, with the information furnished last year, any change in the machine or any change in the car equipment can be taken care of by following out the points stated in last year's report."

(The report was received and the committee discontinued without discussion.)

SPECIFICATIONS AND TESTS FOR MATERIALS

The committee was instructed to revise certain specifications and prepare new ones covering certain other classes of material covered in the recommendations of last year's committee on form.

Specifications covering sixteen different classes of material were sent out for criticism by the members and, as a result of these criticisms and subsequent meetings, it was agreed that the following named materials only could be handled this year: Air-brake hose; heat-treated knuckle pivot pins; steel axles; refined wrought-iron bars; welded pipe; helical springs; chain; journal-box brasses; and that the specifications covering the following materials could be further investigated and specifications offered at the next annual meeting:

Refrigerator car heat-insulation materials; mild-steel bars for miscellaneous parts; steel castings; rivet steel and rivets; structural steel and steel plates; galvanized sheets; malleable-iron castings, and elliptic springs.

The specifications covering air-brake and signal hose for passenger and freight equipment cars have been revised, changing the form of the specifications and explaining the methods of test, but the committee has endeavored not to make any changes in the requirements of the specifications other than those in existence as standard, and as adopted in 1913.

The committee respectfully recommends that the revision of the specifications for air brake and signal hose for passenger and freight equipment cars be made standard:

That the specifications offered for steel axles be adopted as standard, and

That the following specifications be submitted to letter ballot as recommended practice: Refined wrought-iron bars; heat-



C. D. Young
Chairman, Committee on Specifications and Tests for Materials

treated knuckle pivot pins; welded pipe; helical springs; chain, and journal-box brasses.

The report is signed by:—C. D. Young, (Penn.), chairman; J. R. Onderdonk, (B. & O.); J. J. Birch, (N. & W.); J. S. Downing, (L. S. & M. S.); E. B. Tilt, (C. P. R.); Frank Zeleny, (C. B. & Q.); J. S. Sheafe, (B. & O.), and J. W. Taylor, secretary.

Following are the principal provisions in the specifications recommended for "Recommended Practice."

SPECIFICATIONS FOR WELDED PIPE FOR PASSENGER AND FREIGHT EQUIPMENT CARS.

I. MANUFACTURE.

1. Process.—(a) Steel used in the manufacture of pipe shall be of a soft, weldable quality made by the Bessemer process.

(b) The wrought iron used in the manufacture of pipe shall be double-refined.

(c) All pipe 2 in. nominal diameter or under may be butt-welded, but all pipe larger shall be lap-welded.

II. PHYSICAL PROPERTIES AND TESTS.

2. *Tension Tests.*—The material shall conform to the following minimum requirements as to tensile properties:

	Steel.	W. I.
Tensile strength, lb. per sq. in.	50 000	45 000
Elastic limit,	30 000	.....
Elongation in 8 in. ....per cent.	18	12

3. *Hydrostatic Tests.*—All pipe shall be tested to the following hydrostatic pressures:

Standard grade pipe of single thickness, butt welds up to and including 2 in.—700 lb.; lap welds between 1½ in. and 4 in. inclusive—1,000 lb.; extra strong pipe of double thickness; butt welds up to and including ¾ in., 700 lb.; 1 in. to 2 in., inclusive, 1,500 lb.; lap welds, 1½ in. and 2 in., 2,500 lb.; 2½ in. to 4 in., inclusive, 2,000 lb.

4. *Flattening Test.*—A section of pipe 6 in. long shall be placed in a compression machine with the weld at the top and flattened until the distance between the plates of the machine is 60 per cent. of original external diameter for wrought iron and 25 per cent. for steel pipe. The pipe shall not show any opening, except that opening of the weld will not be considered cause for rejection.

5. *Bend Test.*—A sufficient length of pipe to be bent cold 180 deg. around a mandrel the diameter of which is 18 times the nominal diameter of the pipe without any opening of weld or cracks in any portion of pipe.

III. WEIGHTS.

6. *Weights.*—The standard weights for pipes of various inside diameters are as follows:

STANDARD GRADE PIPE. Single Thickness.			EXTRA STRONG PIPE. Double Thickness.		
Nominal Diameter, In.	Outside Diameter, In.	Weight of Pipe per Lin. Ft. threaded with Couplings.	Outside Diameter, In.	Weight of Pipe per Lin. Ft. Plain Ends.	No. of Threads.
¾	.405	.25	.405	.31	27
¾	.540	.43	.540	.54	18
¾	.675	.57	.675	.74	18
¾	.840	.85	.840	1.09	14
¾	1.050	1.13	1.050	1.47	14
1	1.315	1.68	1.315	2.17	11½
1¼	1.660	2.28	1.660	3.00	11½
1½	1.900	2.73	1.900	3.63	11½
2	2.375	3.68	2.375	5.02	11½
2½	2.875	5.82	2.875	7.66	8
3	3.500	7.62	3.500	10.25	8
3½	4.000	9.20	4.000	12.51	8
4	4.500	10.89	4.500	14.98	8

Ten per cent. of each lot shall be weighed and a comparison made with the sample. All pipe shall be rejected that varies more than 5 per cent. from that given in the above table.

SPECIFICATIONS FOR HEAT-TREATED KNUCKLE PIVOT PINS FOR PASSENGER AND FREIGHT EQUIPMENT CARS.

I. MANUFACTURE.

1. *Process.*—The steel shall be made by the open-hearth process.

2. *Heat Treatment.*—The pins shall be properly heat-treated to meet the requirements of the physical tests.

II. CHEMICAL PROPERTIES AND TESTS

3. *Chemical Composition.*—The steel shall conform to the following requirements as to chemical composition:

Carbon	0.55—0.70 per cent.
Manganese	0.40—0.60 per cent.
Phosphorus, not over.....	0.05 per cent.
Sulphur, not over.....	0.05 per cent.
Silicon	0.15—0.25 per cent.

4. *Ladle Analysis.*—An analysis shall be made by the manufacturer from a test ingot taken during the pouring of each melt, to determine the percentage of carbon, manganese, phosphorus, sulphur and silicon. Drillings for analysis shall be taken not less than ¼ in. beneath the surface of the test ingot.

III. PHYSICAL PROPERTIES AND TESTS

5. *Drop Tests.*—This test shall be made on a standard "M. C. B." drop-test machine (see Plate 29-D), the pins resting on rounded supports held rigidly 10 in. center to center, to be subject to a blow by a standard weight of 1640 lb. falling from

a height of 3 ft., and shall show a deflection not less than 15 deg. or more than 35 deg. without cracking or breaking.

6. *Number of Tests.*—The manufacturers shall furnish, free of charge, one extra pin with each lot of 200 or less.

IV. PERMISSIBLE VARIATIONS

7. *Permissible Variations.*—The diameter of the pins shall conform to the standard M. C. B. limit gages for rounds. The length shall not vary more than ⅛ in. below or above that specified.

SPECIFICATIONS FOR STEEL AXLES FOR PASSENGER AND FREIGHT EQUIPMENT CARS

I. MANUFACTURE

1. *Process.*—The steel shall be made by the open hearth process.

II. CHEMICAL PROPERTIES AND TESTS

2. *Chemical Composition.*—The steel shall conform to the following requirements as to chemical composition:

Carbon	0.38—0.52 per cent.
Manganese	0.40—0.60 per cent.
Phosphorus, not over.....	0.05 per cent.
Sulphur, not over.....	0.05 per cent.

3. *Ladle analysis.*—An analysis shall be made by the manufacturer from a test ingot taken during the pouring of each melt, to determine the percentage of carbon, manganese, phosphorus, sulphur and silicon. Drillings for analysis shall be taken not less than ¼ in. beneath the surface of the test ingot. A copy of this analysis shall be given the purchaser or his representative. This analysis shall conform to the requirements specified in Section 2.

III. PHYSICAL PROPERTIES AND TESTS

4. *Drop Tests.*—The axles shall conform to the following drop-test requirements:

(a) The test axle shall be so placed on the supports that the tup will strike it midway between the ends. It shall be turned over after the first and third blows, and when required after the fifth blow. When tested in accordance with the following conditions, the axle shall stand the specified number of blows without fracture, and the deflection after the first blow shall not exceed that specified in Table No. 1.

Size of Axle, In.		Capacity of Cars, Lb.	Distance between Sup- ports, Ft.	Weight of Tup, Lb.					
				1 640			2 200		
Journal	Diam. at Center			Height of Drop, Ft.	Num- ber of Blows	Max. Deflec- tion, In.	Height of Drop, Ft.	Num- ber of Blows	Max. Deflec- tion, In.
4¼ x 8	4¾	60 000	3	34	5	7½	.....	.....
5 x 9	5¾	80 000	3	43	5	6¼	.....	.....
5½ x 10	5¾	100 000	3	43	7	4½	.....	.....
6 x 11	6¼	.....	3	.....	.....	.....	40	7
								5¼	

(b) The deflection is the difference between the distance from a straight edge to the middle point of the axle, measured before the first blow, and the distance measured in the same manner after the blow. The straight edge shall rest only on the collars or the ends of the axle.

5. *Drop-Test Machine.*—The anvil of the drop-test machine shall be supported on 12 springs, as shown on the M. C. B. drawings, and shall be free to move in a vertical direction, and shall weigh 17,500 lb. The radii of the striking face of the tup and of the supports shall be 5 in.

6. *Number of Tests.*—(a) One drop test shall be made from each melt. Unless otherwise specified, not less than 30 axles shall be offered from any one melt.

(b) If the test axle passes the physical tests, the inspector shall draw a straight line 10 in. long parallel with the axis of the axle, and starting with one end of it he shall prick-punch this line at several points. A piece 6 in. long shall be cut off from this same axle so as to leave some prick-punch marks on each piece of axle. Drillings for chemical analysis shall be taken by using a ⅝-in. drill and drilling in the cut-off end 50 per cent of the distance from the center to the circumference and parallel with the axis of the axle.

V. PERMISSIBLE VARIATIONS AND WEIGHTS

7. *Permissible Variation.*—The axle shall conform in size and shape to the standard M. C. B. drawings (see Sheet No. 15). Length shall not be less than shown and not more than ⅝ in. over.

SPECIFICATIONS FOR REFINED WROUGHT-IRON BARS FOR PASSENGER AND FREIGHT EQUIPMENT CARS

I. MANUFACTURE

1. *Process*.—The finished product shall consist either of new muck-bar iron or a mixture of muck-bar iron and scrap, but shall be free from any admixture of steel. Muck bars shall be made wholly from puddled iron.

II. PHYSICAL PROPERTIES AND TESTS

2. *Tension Tests*.—Unless otherwise specified, the iron shall conform to the following requirements as to tensile properties:

Tensile strength, lb. per sq. in.	47,000—53,000
Elongation in 8 in., minimum per cent.	22

3. *Permissible Variations in Physical Properties*.—(a) *Tensile Strength*.—Large sections reduced or flats and rounds of ½ in. or under may show a tensile strength of 45,000-52,000 lb. per sq. in.

(b) *Elongation*.—Twenty per cent of the test specimens representing one size may show the following percentage of elongation in 8 in.:

½ in. or over, tested as rolled	20 per cent.
Under ½ in., tested as rolled	16 per cent.
Reduced by machining	18 per cent.

FLAT BARS:

¾ in. or over, tested as rolled	18 per cent.
Under ¾ in., tested as rolled	16 per cent.
Reduced by machining	16 per cent.

4. *Bend Tests*.—(a) *Cold-bend Test*.—For round, square and hexagon bars under 2 sq. in. in section, and for flats less than ¾ in. thick, shall bend cold around a pin the diameter of which is equal to the diameter or thickness of the specimen. For rounds, flats and hexagon bars 2 sq. in. or over in section, and for all flat bars over ¾ in. in thickness, around a pin the diameter of which is equal to twice the diameter or thickness of the specimen.

(b) *Hot-bend Test*.—The test specimen, when heated to a temperature between 1700 and 1800 deg. F. (light cherry red), shall bend through 180 deg. without fracture on the outside of the bent portion, as follows: For round, flat and hexagon bars under 2 sq. in. and over in section, around a pin the diameter of which is equal to the diameter or thickness of the specimen.

(c) *Nick-bend Test*.—The test specimen, when nicked 25 per cent around the round bar, and along one side for flat bars, with a tool having a 60-deg. cutting edge, to a depth of not less than 8 or more than 16 per cent of the diameter or thickness of the specimen, and broken, shall not show more than 10 per cent of the fractured surface to be crystalline.

5. *Number of Tests*.—(a) All bars of one size shall be piled separately. One bar from each 200 or less shall be selected at random and tested as specified.

(b) If any test specimen from the bar originally selected to represent a lot of material contains surface defects not visible before testing, but visible after testing, or if a tension-test specimen breaks outside the middle third of the gage length, one retest from a bar will be allowed.

III. PERMISSIBLE VARIATIONS IN GAGE

6. *Permissible Variations*.—(a) *Round bars* shall conform to the standard M. C. B. limit gages.

(b) *Flat Bars*.—Thickness shall not vary more than corresponding diameter for rounds: thus, 1 in. thick could vary from 0.9905 to 1.0095 in.

(1) Sizes under 3 in. wide shall not be more than ⅛ in. under or over size in width.

(2) Sizes 3 in. and over shall not be under size or more than ⅛ in. wider than ordered.

SPECIFICATIONS FOR HELICAL SPRINGS FOR PASSENGER AND FREIGHT EQUIPMENT CARS

I. MANUFACTURE

1. *Process*.—The steel shall be made by the open-hearth, electric or crucible process.

II. CHEMICAL PROPERTIES AND TESTS

2. *Chemical Composition*.—The steel shall conform to the following requirements as to chemical composition:

	Bars 1 in. and under.	Over 1 in.
Carbon	0.90—1.10 per cent.	0.95—1.15 per cent.
Manganese, not over	0.50 per cent.	0.50 per cent.
Phosphorus, not over	0.05 per cent.	0.05 per cent.
Sulphur, not over	0.05 per cent.	0.05 per cent.

3. *Ladle Analysis*.—An analysis shall be made by the manufacturer from a test ingot taken during the pouring of each melt, to determine the percentage of carbon, manganese, phosphorus, sulphur and silicon. Drillings for analysis shall be taken not

less than ¼ in. beneath the surface of the test ingot. A copy of this analysis shall be given the purchaser or his representative. This analysis shall conform to the requirements specified in Section 2.

4. *Number of Chemical Tests*.—One sample from each 500 springs or less shall be taken. If the springs are small the entire spring shall be taken; if large, a section weighing ½ lb. shall be cut from any part of the spring. The sample shall be stamped as soon as chosen with the inspector's stamp. If the sample for chemical analysis is cut off hot, it shall be cooled in such a way as not to harden it.

III. PHYSICAL PROPERTIES AND TESTS

5. *Tests*.—(a) *Free Height*.—Place each spring on a flat plate and measure the distance between the plate and the other end of the spring. This measurement is the free height.

(b) *Solid Height*.—Place the measured springs, either singly or in lots, in the testing machine and apply a load at least 25 per cent greater than the capacity of the springs, then measure the distance between the two plates of the machine. This is the solid height.

(c) *Set*.—Remove the load and again measure the free height at the same point in the circumference at which the first free height was taken. If now the second free height is less than the first by more than ⅛ in., the spring or springs will be regarded as having taken permanent set and will be excluded from further consideration.

(d) *Working Height*.—Apply the specified working load and measure the height.

6. *Number of Tests*.—Unless otherwise specified, 10 per cent of all springs will be subjected to the above tests.

7. *Compression Tests*.—All springs shall be compressed solid at least six times before submitting them for inspection and tests.

IV. PERMISSIBLE VARIATIONS AND WEIGHTS

8. *Dimensions*.—All springs shall not vary more than ⅛ in. from specified height or ⅛ in. from specified diameter.

9. *Weight*.—Ten per cent of the springs shall be weighed, and if any springs are found that weigh less than the specified minimum, the whole lot shall be weighed and all springs that weigh less than the minimum shall be excluded.

SPECIFICATIONS FOR CHAIN FOR PASSENGER AND FREIGHT EQUIPMENT CARS

I. MANUFACTURE

1. *Process*.—The chain may be made of either iron or soft steel. Chain ⅝ in. in diameter or less may have links twisted, if so specified on the order; all other sizes shall have straight links.

II. PHYSICAL PROPERTIES AND TESTS

2. *Proof Test*.—All chain shall be proof-tested in accordance with the following table and shall stand these loads without deformation. The manufacturer shall furnish a certificate of proof test to the purchaser or his representative.

TABLE No. 1

Nominal Diameter of Wire, In.	Maximum Length, 100 Links, In.	Weight per Ft., Lb.	STEEL CHAIN			IRON CHAIN		
			Proof Test	Min. Breaking Weight, Lb.	Min. Elongation, Per Cent.	Proof Test	Min. Breaking Weight, Lb.	Min. Elongation, Per Cent.
¼	102.0	0.75	1 650	3 300	12	1 400	2 800	8
⅜	114.7	1.00	3 000	6 000	12	2 500	5 000	8
½	114.7	1.50	4 000	8 000	12	3 400	6 800	8
⅝	127.5	2.00	5 500	11 000	15	4 650	9 300	10
¾	153.0	2.50	7 000	14 000	15	6 000	12 000	10
⅞	178.5	4.10	11 000	22 000	15	9 250	18 500	10
1	204.0	6.00	16 000	32 000	15	13 500	27 000	10
1 ⅛	255.0	8.00	22 000	44 000	15	18 500	37 000	10
1 ½	280.5	10.00	29 000	58 000	15	24 500	49 000	10
1 ¾	303.0	13.00	36 000	72 000	15	30 500	61 000	10
2	353.5	16.00	44 000	88 000	15	32 000	74 500	10
2 ½	420.0	22.00	62 500	125 000	15	53 000	106 000	10
3	479.7	30.00	90 160	180 320	15	75 000	150 000	10
4	555.5	40.00	110 000	220 000	15	93 500	187 000	10

3. *Tensile Test*.—A piece of chain 2 ft. long will be taken from every 200 ft. or less of each size presented for shipment and tested to destruction in accordance with Table No. 1.

4. *Length*.—The length of 100 links, inside to inside of end links, shall not exceed by more than 2 per cent the figures given in Table No. 1.

5. *Weight*.—The average weight per ft. shall not exceed that given in Table No. 1 and shall not vary more than 8 per cent below.

SPECIFICATIONS FOR JOURNAL-BOX BRASSES FOR PASSENGER AND FREIGHT EQUIPMENT CARS

I. CHEMICAL PROPERTIES AND TESTS

1. *Composition of Shell.*—The shell shall conform to the following requirements as to chemical composition:

Lead	10.00—30.00 per cent.
Tin, not over.....	7.00 per cent.
Copper to be remaining.....	..... per cent.

2. *Composition of Lining.*—The lining metal shall conform to the following requirements as to chemical composition:

Lead }	Optional per cent.
Tin } .....	.....
Antimony, not over.....	14.00 per cent.

II. PHYSICAL PROPERTIES AND TESTS

3. *Test.*—A finished bearing shall be broken through the middle to ascertain the uniformity of the grain of the metal. Where metal shows distinct signs of imperfect mixing, such as separation of component parts, dross or dirt spots, the lot shall be rejected.

III. PERMISSIBLE VARIATIONS IN GAGINGS

4. *Gaging.*—All bearings shall conform to gages and dimensions shown on drawings, and when linings are required they shall conform to the gages and dimensions for linings as shown on drawings.

In presenting the report, Mr. Young stated that the committee had again met with the manufacturers of rubber goods, as a result offered some slight modifications in the wording of the specifications as written in the advance copies. They touch entirely upon changes, classifying the methods of tests. The committee also requested the association to provide proper facilities for making the hose tests required by the specifications.

In closing Mr. Young said: The committee would appreciate it, if the members would try these specifications and criticize them freely, especially those which are to be recommended practice, so that we may get the benefit of everybody's experience. Our specifications, without their use, will not mean very much, and we may make mistakes which we cannot find, unless we have the specifications actually put into operation by the various roads.

DISCUSSION

C. D. Young: Mr. Chairman, there are some of the representatives of rubber goods manufacturers present in the hall, and I would make a motion that an invitation to discuss our air brake hose specifications be extended to them. (The motion was seconded and carried.)

C. C. Gaines, (C. of G.): Mr. President, I would like to have Mr. Young tell us briefly just what changes have been introduced in the present proposed air-brake specification as against the one we had last year, and also just briefly outline the variations between the old and new specifications for car axles.

C. D. Young: In the air-brake hose specification, the temperature at which tests shall be made has been raised 15 degrees, and the first sentence of the section on inspection has been eliminated. There is no change in the requirements as to physical properties.

There is no change in the axle specification except the addition of the drop-test for 6 in. x 11 in. axles, and a tightening up of the chemical requirements as to phosphorus.

Frank H. Van Derbeck (Hewitt Rubber Co.): Mr. President and members of the Association. I do not feel that the courtesy of the floor should be extended to the manufacturers of air-brake hose without their accepting that courtesy. I have listened with interest to the report of your committee, and I desire to say that I believe that the railroads will secure better service from hose made to the 1913 specification than to that of 1905, because of the strictness of the specification and the certainty that hose containing more rubber must be furnished. Your committee has shown great courtesy to the manufacturers, and I am not so sure that the manufacturers have co-operated with them to the extent which they desire, but they have co-operated to a certain extent. One thing remains yet to be done, and I believe your committee is endeavoring to have the manufacturers assist in that. It is to provide more uniform methods of testing, so that the methods and apparatus used by one road will be uniform with that used by the other roads, and by all the manufacturers.

I wish to assure you that we appreciate the courtesy which has been extended.

The report was approved and will be submitted to letter ballot. The committee was continued and made a standing committee.

CAR CONSTRUCTION

CENTER SILLS FOR NEW CARS

The committee carefully reviewed the steel-car situation in order to formulate recommendations as a guide for new work. To furnish maximum revenue returns, the money expended for first cost, repairs, and dead weight hauled should be a minimum.

For cars used in interchange the committee recommends the following as minimum design requirements to produce cars giving maximum returns for the money expended:

Area of center sills: 24 sq. in., minimum.

Ratio of stress to end load: 0.06, maximum.

Length of center or draft sill members between braces: 20 d, maximum ("d" is the depth of the member, measured in the direction in which buckling might take place).

BOX CAR END DESIGN AND STRENGTH

When existing box car ends need renewal they should be reinforced between corner posts with the equivalent of two steel braces, each having a section modulus of 4, or more. These braces may be applied vertically, horizontally or diagonally.

New cars should have steel plate ends ¼ in. thick, reinforced between corner posts with the equivalent of either two vertical steel braces with a total section modulus of not less than 9; or one vertical and two diagonal steel braces with a total section modulus of not less than 10; or three horizontal steel braces with a total section modulus not less than 10. New cars may have the following alternative arrangement: Three or more steel braces, two of which run diagonally, with a total section modulus of not less than 12½, and wood lining 1¾ in. thick.

To concentrate strength at a point near the floor line on the vertical center line of the car, diagonal braces should extend



W. F. Kiesel, Jr.
Chairman, Committee on Car
Construction

from the center sills to the side plates, and not from the bottom corner to the ridge. The attachments for the braces and the members to which they are attached must be sufficiently strong to realize the full strength of the braces.

Hardwood or yellow pine may be considered equivalent to the steel members, if the section modulus is four times as great. Wooden posts and braces should be set in metal pockets not less than 1½ in. deep, and must be held in place by adequate tie rods. Lining at car ends should be supported at intervals not greater than 30 times the thickness. Types of end similar to Van Dorn ends, made of ¼-in. plate, or Murphy ends, with the lower half made of ¼-in. corrugated plate, and the upper half with ⅜-in. corrugated plate, may be substituted for those described.

CAR DOORS AND FASTENINGS

The committee feels that one of the most important parts of the car-door proposition, at present, is to reinforce the doors and door fastenings on some existing box cars in the least expensive manner that will make them safe and serviceable. On account of the patent situation, the committee does not feel that it is feasible to present full detailed designs of doors and fastenings without eliminating some of the best-known construction, and, therefore, prefers to present its recommendations in specification form, as follows:

Specification for Reinforcing Existing Doors: The necessary

additional number of bottom door guides should be provided to make four on each side of the car—one adjacent to each door post, one in the middle of the doorway, and the other between the back door post and the open door stop, located approximately as shown in the illustration, and similar in design, with particular reference to the height of lip, which should be $1\frac{3}{4}$ in. If the design of the door is such that the removal of the door guide next to the door post would permit the door to be pulled away from the car, then this door guide should be of such design that it can not be removed when the door is closed.

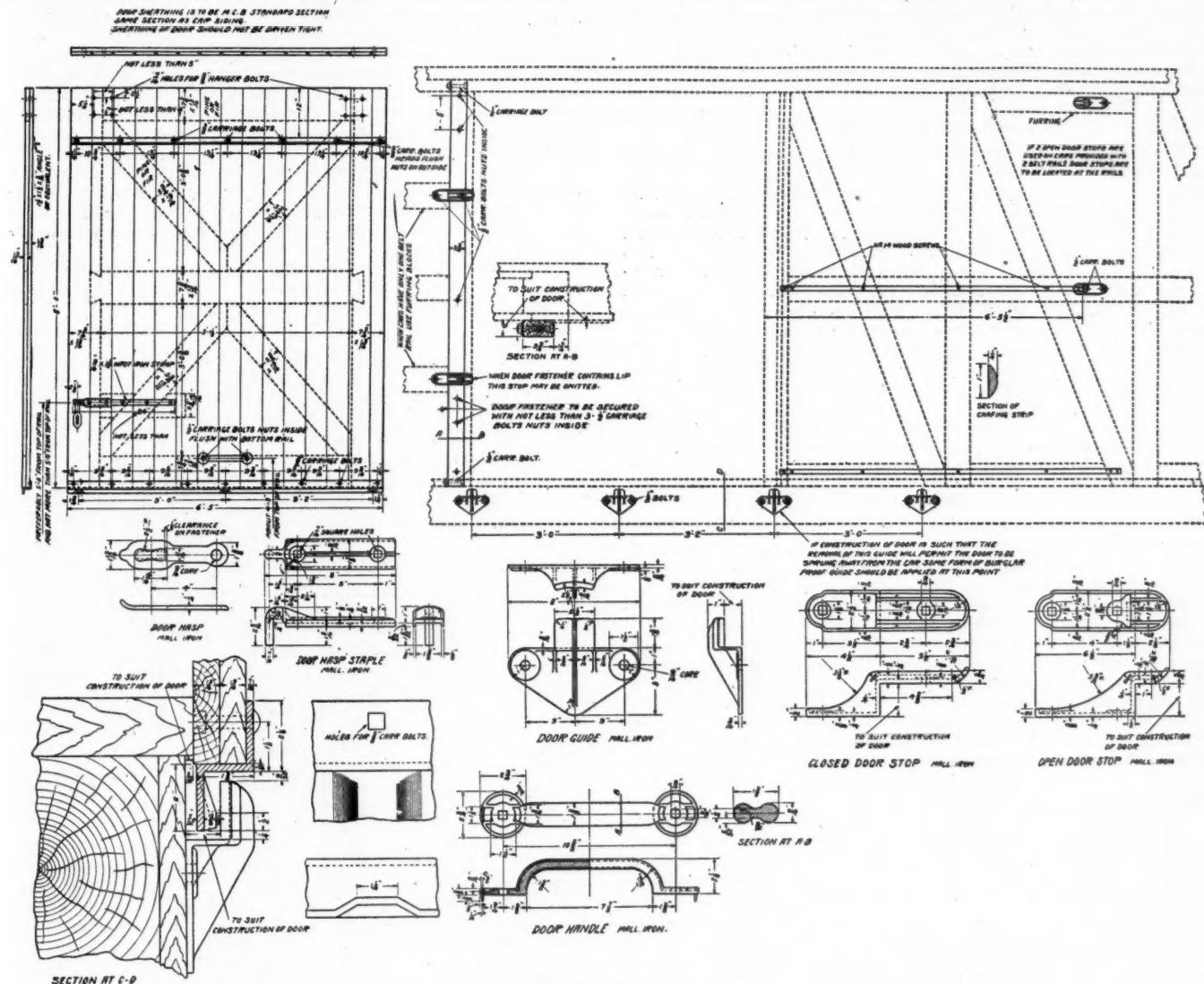
Doors should be reinforced against bulging by the equivalent of two $1\frac{1}{2}$ in. by $1\frac{1}{2}$ in. by $\frac{3}{16}$ in. angles extending horizontally the full width of the door, one located approximately 12 in. from the top of the door, and the other approximately 12 in. from the bottom of the door, and fastened with $\frac{3}{8}$ -in. carriage bolts.

The door hasp fastener should be at least 24 in. long, fastened with not less than five $\frac{3}{8}$ -in. bolts with the nuts on the inside of

action of the door hangers, and will also keep out rain and snow, proper flashing, if necessary, to be provided over the door track. The design of track and hangers should be such that when the door is being opened or closed it can not lift up and bind against the track.

Bottom door guides are to have $1\frac{3}{4}$ -in. lip, and to be four in number—one located adjacent to each door post, one in the middle of the doorway, and one between the back door post and the open door stop, located approximately as shown in the illustration, and similar in design, with particular reference to the height of lip, which should be $1\frac{3}{4}$ in. If the design of the door is such that the removal of the door guide next to the open door post would permit the door to be pulled away from the car, then this door guide should be of such design that it can not be removed when the door is closed.

Metal open door stops are recommended, one or more in number, of the design shown in the illustration, securely bolted to the



Revised M. C. B. Box Car Door

the door. The door hasp fastener should be of such design that the hasp can not be removed without removing the bolts from the fastener.

The closed door stop should have two or more lips extending at least $1\frac{1}{2}$ in. over the door to support the door against bulging outward. Where all-wood closed door stops are used, they should be strengthened against splitting, and should have at least two metal reinforcing brackets similar to the closed door stop casting illustrated.

Open door stops, if of wood, should extend the full height of the door and be strengthened against splitting.

Specifications for Complete New Doors for Existing Cars or for New Construction.—The upper door track should be continuous, and strong enough so that it will not sag, securely fastened to the car with $\frac{1}{2}$ -in. bolts, or $\frac{3}{8}$ -in. rivets not less than six in number, and so designed that it will continuously support the door against outward pressure independent of any

framing of the car with $\frac{1}{2}$ -in. bolts. If a wood open door stop is used, it should extend the entire height of the door and be strengthened against splitting.

The back edge of the door and the back door post should be so constructed that when the door is closed and fastened it will be continuously supported from top to bottom against outward pressure, and will also be protected against leakage of rain or snow and admission of sparks.

Closed door stop should be preferably of metal, and provide protection against leakage of rain or snow and admission of sparks. The closed door stop must also support the door against outward pressure, either continuously from top to bottom, or by the use of two or more lips projecting at least $1\frac{1}{2}$ in. over the door, approximately as shown in the illustration. If wooden closed door stops are used, they must be strengthened against splitting and must be provided with at least two metal closed door stops provided with lips to project over the door at least

1½ in. to support the door against bulging outward, as illustrated.

Wood doors should have preferably a metal frame, with a Z bar or its equivalent at the bottom, approximately as shown, the Z bar acting as a stiffener and also engaging with the bottom door guides. This construction or its equivalent permits the use of door guides which project a very short distance from the side of the car, and are, therefore, less subject to injury, particularly the door guide at the middle of the doorway.

Wooden frame doors, if used, should be at least as strong as that shown in the illustration.

The door hasp fastener should be at least 24 in. long, fastened with not less than five ¾-in. bolts, with nuts on the inside of the door. The door hasp fastener should be of such design that the hasp can not be removed without removing the bolts from the fastener.

Door hanger bolts are to be located not closer together than 4 in. one way, and 5 in. the other. Four ¾-in. bolts are recommended. It is understood that all of the above recommendations apply particularly to 6-ft. door openings of cars with single, outside-hung side doors, and in all cases where a particular construction is described or specific dimensions are given, their equivalents will be acceptable.

PLACARD BOARDS FOR BOX CARS

The committee recommends that the space available for placards should be not less than 16 in. by 24 in. on each end and each side of the car. Box cars with sufficient space available on wood siding, or exposed lining, should have a rectangular space, painted black, on each side and each end. Other box cars should be provided with placard boards, made of soft wood, not less than 16 in. by 24 in. by 1 in. The vertical edge should be reinforced with metal protection, and the bolts fastening the boards to the car should be not less than six in number, and should pass through the metal reinforcing pieces, three through each. The boards may be made of more than one piece, and should then be tongued and grooved. The distance from the floor line of the car to the bottom of the board should be not less than 4 ft. 6 in.

Routing card boards, preferably the same size as the placard boards described, should be placed on the side of the car, as near as possible to the door seal.

DRAFT GEAR

The committee recommends that cars should not be accepted in interchange unless equipped with draft gears and attachments having strength or capacity equivalent to or greater than the following requirements:

The section area of draft timbers located underneath the center sills must be not less than 32 sq. in. Each draft timber must be not less than 4 in. wide, nor less than 6 in. deep, and must be held securely to the center sills and end sills by not less than seven ⅞-in. bolts, or six 1-in. bolts. Draft timbers extending through or beyond the bolsters must be secured to the center sills by two or more additional bolts. Draft gear yokes must be not less than 4 in. wide by 1 in. thick, made of wrought iron or steel, and attached to the coupler side with not less than two 1½-in. rivets. Draft springs must have a capacity of at least 19,000 lb.

Should cars require repairs to bring them up to these minimum requirements, the following recommendations are offered:

Draft timbers should butt against the body bolsters and shoulder against the end sills, both of which in turn should be well secured against shifting from either pulling or buffing strains. Draft gear stops should, whenever possible, be gained into the draft timber or heeled on the end sills. Front and back draft gear stops may be made in one piece, or may be secured to a metal plate not less than ⅝-in. thick, or made separate. Each stop (counting two stops riveted to a ⅝-in. plate as one piece) must be secured to the draft sill by not less than six ¾-in. bolts or their equivalents.

The center sills should be strengthened by the use of a filling or packing piece secured between them, butting against the end sill and extending beyond the body bolster toward the center of the car, a distance at least as much as between the bolster and end sill. The present M. C. B. coupler side clearance of 2½ in. should also be provided.

The report is signed by:—W. F. Kiesel, Jr., (Penn.), chairman; A. R. Ayers, (N. Y. C.); S. G. Thomson, (P. & R.); C. E. Fuller, (U. P.); H. H. Vaughan, (C. P.); E. G. Chenoweth, (C. R. I. & P.); J. C. Fritts, (D. L. & W.); T. M. Ramsdell, (O. W. R. & N.), and C. L. Meister, (A. C. L.).

In presenting the report, Mr. Kiesel said that the committee desired to make an addition to the sentence in the third paragraph, under Box Car End Design and Strength, beginning "The attachments for the brace and the members," by making the end of the sentence read "to realize the full

bending strength of the braces with a strain acting 18 in. above the floor."

DISCUSSION

H. H. Vaughan (Can. Pac.): I advised Mr. Kiesel that I realized it was unfair at the time the report was written to interpose objections, but in some respects I did not consider the report satisfactory. My objections are as follows: I cannot subscribe to the recommendation on center sills for new cars. I am inclined to agree that the two standards I recommend would not be practical, and therefore consider that the decision must be left to each road individually. From experience gained with 30,000 cars, having 19.8 sq. in. of centre sill area, I do not consider results would warrant this area being increased for the class of traffic in which these cars are usually employed, while roads on which exceedingly heavy trains are handled may find it desirable to employ heavier construction at the expense of heavier dead weight. Until the time arrives at which interchange requirements demand a minimum strength of center sill, it therefore appears useless to specify the dimensions for new cars.

End construction for new cars with two vertical 4 in. z-bars and 1¼ in. wood end lining has proved satisfactory, and is ample as a minimum requirement. I would therefore recommend the report be amended to read "New steel cars should have steel plate ends 1¼ in. thick, or wood lined ends 1¼ in. thick," etc., and that the statement regarding alternative arrangement be omitted. Bending strength of the braces should be specified at a definite height above floor line. It is unnecessary to provide end fastenings which are equal to the shearing strength of the braces.

I do not consider it desirable to specify patented type of ends, as these could better be provided for by saying that special design of ends should be equal in strength.

Under the heading of Car Doors and Fastenings, angles should be located not over 12 in. from top and bottom of door to provide for construction in which these angles or their equivalent is used as part of door frames. They should be used with ¾ in. carriage bolts, or ¼ in. rivets.

The recommendations on draft gears should permit cars to be trans-shipped at option of receiving road in place of forbidding their acceptance in interchange. The draft timbers should be held securely to the center sills, end sills and dead wood by not less than six ⅞ in. bolts or five one-inch bolts. Size of draft springs should be specified in place of capacity. I consider that a clause should be drafted specifying the condition of draft gear and sills, as this is more important than the dimensions. I do not consider that recommendations for repairs are advisable, as it is not apparent what object would be attained by them.

James Coleman (G. T.): There are some railroads which have a large number of cars with less area than required by this report, and I do not think it is fair to adopt this report, as it would almost cripple some of the railroads which have a large number of these cars in service.

J. F. DeVoy: If this report were taken literally and were applied to existing box car ends, I think it will be found almost impossible to comply entirely with the requirements. We could not vote intelligently on the subject last year, with reference to the older cars, and I do not think it will be possible for us to do so at this time.

H. H. Vaughan: I think the report of the committee should be received, and I would be very glad if the association would receive my report as a minority report. The report as a whole demands varied action. As to some portions relating to the minimum strength of draft gear on cars in interchange, that portion should be referred to the Arbitration committee for their consideration. Another portion of the report, the strength of centre sills on new cars, may be submitted to letter ballot as recommended practice. I do not think any action should be taken on the report as a whole.

W. F. Kiesel, Jr.: If these matters are made recommended practice, it is not absolutely necessary for roads to immediately retire or change the cars. It may be years before they become standard, but adopting them as recommended practice will provide a basis on which to design future cars.

J. J. Hennessey, (C. M. & St. P.): I believe this report, at the present time, should be a report of progress, as the roads in general are not prepared to make a great many radical changes. Of course, I understand that the recommendations in this report are to be submitted for approval only as recommended practice, and it will not compel the roads to make these changes.

W. F. Kiesel, Jr.: It is impossible to describe every detail design that is covered by a certain requirement, so in order to clear this matter up, I would suggest that you take up each of these subjects, one after the other, and determine what to do. I would therefore move that the recommenda-

tions of the committee on center sills for new cars be referred to letter ballot for adoption as recommended practice.

S. G. Thompson (P. & R.): I would say, as a member of the committee, that we would like a discussion of each one of these subjects right on the floor now, if we have time. The members of the committee have a comparatively limited amount of experience as compared with the experience of all the members of the Association. We should take up each of these items and discuss it, and then you can make whatever disposition you want of the item.

C. A. Schroyer: The note in the last paragraph of the report gives the gist of the whole matter. It says: "It was further suggested that if such car design be made complete in detail, incorporating it in Recommended Practice, it would be used by some of the smaller roads who do not prefer to make designs of their own, thus tending toward a more uniform type of car for smaller roads." I can see no objection anywhere to referring this matter to letter ballot for adoption for recommended practice.

F. W. Brazier: The committee has told a lot of truths about doors and door trimmings. Look at the wooden door stops which are being put on, without being reinforced, a little fastening with only a $\frac{3}{8}$ in. bolt in it. You may find some of these on our cars. If you are repairing them, send in your bills and they will be honored.

I should like at this time to submit a letter to the Association. The letter is as follows:

(The letter is addressed to the executive heads of six railway systems, and is signed by E. P. Ripley, president of the Atchison, Topeka & Santa Fe.)

Dear Sirs:—

At the recent and last meeting of the American Railway Association a resolution looking to the adoption of a standard freight car was discussed and a committee was appointed to consider the subject.

As the chairman of the committee I am addressing you as one of its members with a view to obtaining your opinion on the subject and the extent of your interest therein.

In order that there may be a text upon which to base discussion I may perhaps be pardoned for expressing some of my own views on the importance of the subject and the possible methods of solution.

First: Each master car builder holds opinions more or less amounting to deep conviction on the subject of the best all around car—he may be exactly correct as to his own individual needs, but he is likely to forget that in these days his cars go everywhere, and it may be that the major part of their service is on lines other than his own. The result is that any road handling and being obliged to repair foreign cars is obliged to carry an enormous stock of repair parts, in many cases only very slightly varying each from the other yet sufficient to make it impossible to interchange. Estimates as to loss of interest on the cost of such parts is impossible, but must be a large sum.

Second: The ideas of car builders vary widely on the matter of weight, of strength, and of safety. One road sacrifices everything to lightness or absence of tare weight—another is determined on the maximum of strength almost regardless of weight—one road believes that the best car that can be built is the cheapest in the end—and another, either from choice or from necessity, builds as cheaply as possible, even though he may realize that his car may have but short life and may spend most of that life in the repair yard. Each of us under existing rules pays as much in the way of per diem on a cheaply built or decrepit car, the use of which is a menace to the safety of life and property, as he pays for a first class car.

Third: There is constant pressure on the part of shippers of light and bulky articles for a car of a size permitting the shipment of the maximum amount that can be loaded—competition has been responsible for the building of some cars so large as to be positively unsafe for use in some sections of the country. On the other hand, the private ownership of cars has resulted in the building of many cars with reference to the most convenient commercial sales unit and with no regard for the economy of railroad service. Thus we have oil cars of widely varying capacity, yet pay the same sum for the use of each, though one may carry twice as much as the other.

These are only a few of the inconsistencies and absurdities that have grown upon us and the wonder is that there are not more, considering the rapidity of our growth.

As a first step toward uniformity it has seemed to me that we should attack the type of car which is most nearly universal—which is used for substantially the same purposes all over the country—which has no great variation in size, but which has hundreds of useless and some almost frivolous differences in details which should be eradicated.

Let no one deceive himself with the idea that this will be an easy task—each of you will find his subordinates wedded to ideas that other men in the same lines and presumably equally well posted will pronounce absurd, or, at least, mistaken. A standard box car, if it is ever attained, will not altogether please anybody, and those who enter a movement having for its object a standard must be prepared to surrender some of their theories. The only question to be answered is whether anybody can afford to surrender the advantages of uniformity for the sake of preserving his hobbies, or whether he is justified in holding on to the latter at the expense of his stockholders.

I have not touched as yet on the advantages in manufacturing and buying which would result from a standard car. A builder could carry at all times a stock of seasoned material from which he could turn out finished cars on short notice, whereas under existing conditions he can carry little because each road demands specialties which are not essential, but which vary with the opinions or whims of each builder.

For the consideration of the Committee I suggest that it begin by asking the Presidents of the more important roads in the country to issue mandatory orders to the proper subordinate officials to go into early conference on this subject and not to abandon such conference until the points upon which agreement cannot be reached be tabulated in detail—that they invite the principal car manufacturers of the country to attend and join in such conference—and that they be requested to report to this Committee their findings not later than a certain date—say October first, next.

This suggestion is presented for discussion and with the idea that its adoption or the adoption of some similar idea may obviate the necessity of a meeting. Your early attention with comments is invited.

Yours truly,

(Signed) E. P. RIPLEY.

The President: The motion as it stands, as I understand it, is to refer Subject 1-B to letter ballot for adoption as recommended practice.

J. F. DeVoy: I am willing to vote in favor of the motion that this be submitted to letter ballot for recommended practice, or anything else, except the first sentence under "Center Sills for New Cars." I spoke a short time ago about the old cars. I think we should take some action on this matter at this meeting.

H. H. Vaughan: It may be that referring this report to letter ballot for adoption as recommended practice will make a progress report of it, but it also does something more: it puts the stamp of approval of the association on certain required limits for new cars, and any road that builds cars which do not come up to that minimum is more or less subject to criticism. Four years' experience with cars having two 15 in. channel center sills, properly reinforced with a bolster, but without a continuous cover plate, has shown excellent results in service, and the cars have not sustained sufficient damage in interchange service to justify us in adding 500 lbs. of weight. I have figured that 500 lbs. of added weight adds \$6 per annum to the cost of pulling the car around. I do not want to add that cost unless it is necessary, and I cannot see that it is at the present time.

C. E. Chambers, (C. of N. J.): I take issue with Mr. Vaughan as to the matter of cars in service of four years. I do not think that is sufficient time in which to decide whether a car is strong enough. During that time the sills have not commenced to deteriorate, but during the next four years there might be considerable weakness displayed in the sills.

S. G. Thompson: I approve of what Mr. Chambers has just said. I think we should build our cars for ten or twenty years. We have threshed this matter over in the committee for some two years, and we have come to the conclusion that 24 inches is the minimum for the area of the center sill.

C. A. Schroyer: What shape was it to be?

S. G. Thompson: We recommend 24 sq. in. center sills for new work, not for old work, or existing work, and that is, as I have said, very small, considering the buckling stresses and shocks, and the heavy locomotives and heavy cars which are in service today. Many roads are building new equipment with the center sills 35 inches, and as high as 40 inches. The car must either carry the transportation or it will be in the shop. I think we should devote 24 sq. in. to the area of the center sill in order to keep it out of the shop.

F. F. Gaines (C. of G.): I do not quite agree with the last two or three speakers. I believe we should reach a definite minimum for the center sill stresses. It has been my experience with our own cars, and with other cars which have come to our road, that as they get older they deteriorate. They lose a certain amount in the strength of the metal

by rusting. We have had a number of cars which only had a 15 in. channel for the center sills with which we have had a lot of trouble, especially cars from neighboring lines. I believe in view of the work which the committee has done and the thorough investigation which it has made, that what has been presented is a reasonable limit and we should let it go to letter ballot for recommended practice.

C. E. Fuller (U. P.): I think I can speak as being one of the lightest car builders in the country, but we use 24 in. or more, for the area of the centre sills. There is no trouble about building the cars light, you can build them as light as you want to, provided you put the strength where it is necessary. It does not make any difference what the Association says, we will not go to less than 24 in. on any of our cars, for some time, and we will probably go higher.

E. W. Pratt, (C. & N. W.): I have just been figuring with a pencil on the amount of revenue for these cars on the new per diem basis, and you will probably recognize that it is \$164.25. The new per diem rules have not been in force long enough to arrive at the full effect, but the apparent effect is that some of the smaller roads have during the past year bought several thousand new cars. This association should have a recommended practice to serve as a pointer to such small roads.

J. J. Tatum, (B. & O.): The large railroads of this country have built heavy equipment—they have heavy train service. The smaller roads have no need for the same strength of equipment, but the same car built for the light railroad service goes in service on the railroad where the heavy service exists. That car must be strong enough to stand the service on that road which is required of it. We cannot afford to have cars break down and fill our shops' tracks. The new M. C. B. rules will not permit us, as heretofore, to send them home from all points over the country, and for that reason the cars will be tied up in our shops if they are not made strong enough to stand our service. Our company which has spent a lot of money, as many other roads have done, in building good cars will have to pay a per diem on the cars of the roads which build the weaker type of cars used in interchange service.

S. G. Thompson: If this recommendation does not do anything else, it protects railroads from the railroad that buys its cars from a car company which does not care so much about the question of repairs. The car builder builds his cars to sell, and we have to pay a per diem for these cars.

(The motion to refer the recommendations on center sills for new cars to letter ballot was carried.)

The recommendations on Box-car Ends, Design and Strength and Car Doors and Fastenings were referred to letter ballot, certain provisions being referred to the arbitration committee. The recommendations on placard boards for box cars and draft gears were referred to letter ballot.

F. F. Gaines (C. of Ga.): In regard to the question of designing a standard box car, at the present time, I think we all realize it would be a desirable thing to do, but it seems utterly impossible with the present status of the art. We are going through an evolution in box car design to-day. We have two or three different types of inside sheathing, and metal frame cars, and we do not know which will be the best. We have several kinds of underframing, and we are trying out various types of doors, and other things, and we are not in a position to design a standard car at the present time.

C. E. Chambers: I think the time is perfectly ripe to push hard on the standardization of sizes. The reason we have so many inside dimensions of box cars is because many traffic men, in various parts of the country, if they have much of one special load to ship, for which they have not a suitable car, they design a new car, and then think it is necessary to build a series of cars of that type. There should be greater economy exercised in the matter of the designing of new types of cars to fill special requirements.

D. F. Crawford (Penna. Lines): The proceedings of the American Railway Association of the last meeting, held in May, have probably not reached all of you, but the committee on maintenance has been making an investigation for several years now as to the desirability of making a change in the interior dimensions of the box cars. All the clearance dimensions of all the roads in the country were obtained, and various recommendations were received as to what would be considered a standard box car. I understand that the M. C. B. Association will be requested to prepare a design of a standard box car when the final vote of the members of the American Railway Association decide what are the proper interior dimensions.

C. D. Young (Penna. Lines): I believe that placing the work of the designing of the entire box car in the hands of one committee is a pretty big subject for one committee

to deal with. It seems to me more progress could be made if some of the details were assigned to special committees to give them consideration, as, for instance, a committee on underframing, a committee on roofs, and a committee on general construction of the car body and draft gear. In that way you could work up the details, having the general dimensions which would be prescribed by the American Railway Association.

W. F. Kiesel, Jr.: As a member of the committee on car construction, it would seem to me that the proposition Mr. Young has just made would have just the opposite effect. If three or four committees work independently and try to design the underframing, the superstructure, the roof and draft gear, etc., they would never get together and make the various parts fit into each other. The whole thing would have to be in the hands of one committee, so that the whole construction could be considered as one piece.

F. F. Gaines: I move that the paragraph now under consideration be referred to the incoming executive committee to dispose of it.

(The motion was carried.)

RETIREMENT OF 40,000 AND 50,000 LB. CAPACITY CARS

The committee addressed to the members of the association the following inquiries:

First: Have you any restrictions in force regarding the use of cars of 40,000 and 50,000 lb. capacity?

Second: Do you accept in interchange cars of 40,000 and 50,000 lb. capacity; if so, is the lading transferred?

Third: Do you regard it practicable to prohibit the use of cars of 40,000 lb. capacity in interchange?

Fourth: Do you regard it practicable to prohibit the use of cars of 50,000 lb. capacity in interchange?

At the same time it requested the members to advise the committee as to the number of cars of the various capacities and several constructions operating on their lines.

The committee recommends that the following proposed rule be submitted to special letter ballot, so that it may, if approved, be embodied in the Rules of Interchange effective October 1, 1914:

"After October 1, 1916, all cars of less than 60,000 lb. capacity, having wooden or metal draft arms which do not extend beyond the body bolster, will not be accepted in interchange."

The report is signed by: D. F. Crawford, (Penn.), chairman; C. E. Fuller, (U. P.); J. J. Hennessey, (C., M. & St. P.); F. H. Clark, (B. & O.); C. F. Giles, (L. & N.); F. W. Brazier, (N. Y. C. & H. R.), and R. E. Smith, (A. C. L.).

The following is a summary of the replies received:

SUMMARY OF ALL QUESTIONS

ANSWERS TO QUESTION NO. 1

84 No.
13 Yes.
2 Yes for 40M and no for 50M.
1 Yes for 40M only.
30 No replies.

NUMBER OF CARS IN REVENUE SERVICE

Of each of the constructions named below, as of January 1, 1914.

	40,000 Lb. or less	40,000 Lb. to 50,000 Lb.	50,000 Lb. to 60,000 Lb.	60,000 Lb.
All steel	8	.....	161	445
Steel underframe .....	.....	50	492	98,674
Steel center sills .....	.....	89	2,217	34,317
Metal draft arms	215	11,197	9,192	110,835
Wooden draft timbers extending through body bolsters	29,122	31,413	1,746	166,614
Wooden draft timbers extending to body bolsters	20,522	12,875	5,515	227,881
Grand total	49,867	55,624	19,323	638,766
Metal body bolster	29,727	37,712	17,188	428,758
American continuous draft gear	6,359	2,796	23	29,617

NOTE.—Summary of all cars according to capacity compiled from 138 replies to M. C. B. Circular No. 20, Retirement of 40,000 and 50,000 pounds capacity cars.

ANSWERS TO QUESTION NO. 2

4 No.
85 Yes.
1 No for 40M and yes for 50M.
1 Should be accepted.
3 Yes; lading transferred.
3 Yes; depending upon condition of car.
1 No; lading transferred and charged to us.
32 No replies.

ANSWERS TO QUESTION NO. 3

20 No.
62 Yes.
2 Yes; with sufficient time limit.

- 2 Not at present.
 3 Yes; depending upon construction.
 1 Consider construction of car.
 40 No replies.

ANSWERS TO QUESTION NO. 4

- 30 No.
 48 Yes.
 2 Yes; in reasonable time.
 3 Not at present.
 3 Yes; depending upon construction.
 2 In reasonable time.
 1 Yes; for 40M.
 1 Consider construction of car.
 1 Yes; unless cars are equipped with steel underframe or its equivalent, and all metal truck.
 39 No replies.

At the conclusion of the reading of the report, Mr. Crawford said:

The committee found it very difficult to draw any conclusions or make a more definite recommendation than that just given. In the existing M. C. B. rules, we are permitted to reject such cars and transfer the lading, and some of the lines are doing that. The replies received did not represent a sufficient number of the membership to warrant the committee making more definite recommendations, or a recommendation which would become effective at an earlier date. It was also felt that the private car lines who have cars as indicated by the number of refrigerator cars reporting should be given an opportunity to go over their equipment, as that is the equipment of lighter capacities which will probably be prolonged in the service.

DISCUSSION

F. F. Gaines (C. of Ga.): I move that the report be accepted and that the matter be referred to letter ballot.

D. R. MacBain (L. S. & M. S.): I want to suggest, if nothing better can be done, that the date be changed from October 1, 1916, to October 1, 1915, as a matter of equity to the various railroads that have cars in the interchange service. The railroads that are maintaining low capacity cars, built fifteen to twenty years ago, at a price from \$450 to \$600, are not putting in their share into the pot. A railroad that has nothing below an 80,000 lb. capacity car in service is loaning that car for the regular per diem, and that same railroad is paying the regular per diem to the fellow that owns the little car, and consequently, has the small amount of money invested. If this association is good for any purpose, it ought to be good for bringing about equity in that particular thing, and the longer we stave off this matter of eliminating the low capacity car—let it be equipped as you like—the longer we defer the work that we ought to do. The summary of all the cars that would be affected by 1916, by the proposed rule, won't amount to a drop in the bucket. Something more definite and more drastic ought to be done by the railroads of this country, in order that all the railroads may participate equally in the earnings of their cars, which is not the case at the present time. There are thousands of low capacity cars, below 60,000 lbs., running around through the country that are causing four times as much trouble as the 80,000 lb. capacity cars. The present proposed rule is not going to help the situation very much.

R. W. Bell (I. C.): The damage to cars of light capacity is something enormous. We find, just as Mr. MacBain has stated, that our damage is largely due to light capacity cars, and I think the light capacity cars should be removed from service as quickly as possible.

T. H. Goodnow (C. & N. W.): The Western roads have a great many 50,000 lb. capacity stock cars, which are handled, probably as between one or two roads, interchanging with roads at the yards. We do not quite understand why a 50,000 lb. capacity car, with practically the same number of sills and everything, is prohibited in interchange, when 60,000 lb. capacity cars, with short draft timbers, that are no more capable of being hauled than the 50,000 lb. capacity cars, are not.

J. J. Hennessey (C. M. & St. P.): The question of per diem charges, I do not believe belongs to this association. The capacity of the car does. I want some of these gentlemen that are advocating the retirement of low capacity cars to answer these questions: Why are you going to compel me to refuse a few of the cars that are delivered from any railroad, marked "40,000 lbs.," and at the same time have me say to that railroad "you must take my car that has the short draft timbers, wooden body bolsters, and four or five bolts," because it is marked "80,000 capacity," or 60,000 as the case might be. If you look over the report, it is really appalling to see the number of cars, 60,000 and 80,000 lb. capacity cars—and we have not got all the replies from the roads—that have got short draft timbers. Gentlemen, the most dangerous thing we have got today is weak construction. It is not the capacity of the car. Take a 40,000 or 50,000 lb. capacity car that has a draft timber passing through the body bolsters, and 2 or 3 ft. beyond, do you mean

to tell me that is as dangerous a car as an 80,000 lb. car, with a draft timber about 5 feet long? I cannot see it. And if you bar one, I would be willing to say bar all cars, if they are equipped with short draft timbers.

D. R. MacBain: I am in favor of taking out the sixties, too, so far as that is concerned. I think that will come, but we ought to make progress by eliminating, first, the forties and fifties, and then, later on, consider the sixties. There are thousands and thousands of cars of 80,000 lb. capacity in the country that are weaker in the draft gear than are many in the 40 and 50 class, but most of the railroads that are trying to bring their equipment up, are trying to correct that condition.

H. H. Harvey (C. B. & Q.): I think Mr. Goodnow has brought out a very good point on special cars. On stock cars and furniture cars you cannot carry the full capacity of those cars. If you make an 80,000 lb. car, you have got the car marked 80,000, and you cannot get an 80,000 lb. load in it. You do not have it on a great many roads. If the 60,000 lb. capacity furniture cars should not be barred out, the same is true with the stock car, and the 50,000 lb. furniture car. I think there ought to be a distinction in the class of cars.

D. F. Crawford: All of the members of committee are in entire sympathy with the elimination of the lightly constructed car from traffic at as early a date as possible. If we are correctly informed, there are some 2,700,000 cars in this country. The data that I have had sent to me as chairman of the committee indicates that there are only 120,000 cars in existence that are causing all of this trouble, if we limit ourselves to the 40,000 and 50,000 lb. capacity cars. Therefore, with every railroad in this country having in its own hands the opportunity to keep these 120,000 cars out of their service, I do not think it is necessary for the committee to recommend more arbitrary action than they have recommended. I, personally, would like to see the 40,000 and 50,000 lb. cars removed from interchange. I only defend the date of 1916, because that was the best date the committee could work to, in conjunction with other things in our rules, things that are just as weak and making just as much trouble as these 40,000 and 50,000 lb. capacity cars. These cars are causing all the railroads' trouble, and they can all be kept from causing the trouble on each road, by each of you doing what the rules provide. Reject them and transfer the load. Your whole proposition is to save the cost of transfer, if you do not like the car. To answer Mr. Goodnow's question about the stock cars, I find that there is a total of 2,900 stock cars affected by this proposition. Now I stated that the committee was handicapped in not having reports from all the roads. We not only sent out a circular to the roads, but we asked them again to reply.

A. C. Mather (Mather Stock Car Company): We have a large number of stock cars which were built years ago for the convenience of the railroads. They were built of 40,000 and 50,000 lb. capacity, at the suggestion of the railroads, as the amount of stock carried never exceeds 24,000 lbs. We have data to prove that in transporting cattle from Chicago to New York it costs \$8 a car more, for consumption of coal alone, in the high capacity steel cars than it does in ours. We maintain those cars at our own expense. They cost the railroad not one dollar. And it seems to me, in deliberating on this subject, you should consider thoroughly your action, and not confiscate our property. I cannot help but express myself in that way. I am in sympathy with increased and stronger equipment. At the same time I do feel that stock cars should be excepted in this resolution.

E. A. Miller (N. Y. C. & St. L.): While I am heartily in favor of what Mr. MacBain advocates, so far as eliminating speedily the low capacity car, I believe it would be unfair to the private lines' cars. It would be unfair to many railroads to shorten the time when these cars will be eliminated below that which has been recommended by the committee; 1916 will get here before some of us are ready for it.

O. D. Buzzel (A. T. & S. F.): I think there is nothing that gives a railroad much more trouble than a lot of old stock cars, and it certainly causes us an awful lot of claims, and while I realize the position that it puts a great many of the private lines in, still they have the opportunity to strengthen up those cars so as to make it safe for us to handle them.

J. J. Hennessey: I just wish to say one word. I hope that the members in voting on this will consider it is the construction of the car, not the capacity.

F. F. Gaines: I would like to answer Mr. Hennessey by saying that it includes both. We are not taking an old car that is 20 years old, that is of light construction, and putting on metal draft arms, and doing that kind of work to bring it up to greater capacity, but we are taking 60,000 and 80,-

000 lb. capacity cars, and we are equipping them with steel draft arms, and bringing them up to what they should be.

J. J. Hennessey: The capacity of the cars has differed greatly in the different sections of the country. In the East, where they have had a traffic to handle, they built 60,000 lb. cars, many years before the Western roads commenced to build 60,000 lb. capacity cars. Consequently you have got a great many 60,000 lb. cars that are older than the Western roads' 40,000 lb. cars.

R. W. Bell: The small cars of low capacity are causing us all of our expense, practically. It is no hardship for the railroads which have cars of light capacity to take them and strengthen them, between now and 1916. They won't be any money out, because we are continually repairing the cars and billing them for the cost of repairs.

C. F. Giles (L. & N.): As a member of this committee, I have opposed all along the consideration of the capacity of the car, but we had to have some starting point, and we put in here "60,000 and less," but the whole meat in this thing here is the short draft timber, and if our private line people desire to strengthen up their cars of 60,000 and less, they have the privilege of doing it; nobody is going to refuse those cars if they have draft timbers in that are better than what we prescribe in this report here.

A. C. Mather: That is along the proper line. Let the association pass rules as to what center sills we shall put in our cars, in order to strengthen them. It is useless to build 60,000 and 100,000 lb. capacity cars to carry live stock, but we will be glad to strengthen up our center sills and put in whatever they require, and that is all that does any work in the cars. Why destroy our cars simply because they are of 60,000 lb. capacity when you never can load over 24,000 lbs.? Confine yourselves to the center construction and let us build the car, aside from the center construction, to conform to the purpose for which it is required.

C. E. Fuller (U. P.): I feel that this Association cannot too strongly go on record that it is high time to bring the cars up to a capacity to operate in our heavier trains, or else eliminate them. Now the proposed report of this committee gives them an opportunity to do it; to extend their draft sills back; to put on steel underframes, or do anything they want to. We do not want to build 100,000 lb. capacity cars, to haul live stock in, if they are only going to use 40,000 lb. of stock in a car. We do not ask them to do that, but we do ask them to bring the underframe draft gear up to a point where we can put them in these tonnage trains and operate them over our mountains with safety. A stock car is just as important as anything else, and, if anything, more important. When we dump a stock car and kill a lot of stock it runs into money awfully fast.

R. Quayle (C. & N. W.): The committee does not make any exception to anything except those having wooden or metal draft arms which do not extend beyond the body bolster. Now everybody is in favor of putting in longer draft arms, and if they are, I think that eliminates the whole thing, and even Mr. Mather here says that he is quite willing to do that, and that is all the committee is contending for. I do not see any objection to it.

(The motion to refer the recommendations of the committee to a special letter ballot was then carried.)

ELECTION OF OFFICERS

The following officers were elected: President, D. F. Crawford; first vice-president, D. R. MacBain; second vice-president, R. W. Burnett; third vice-president, C. E. Chambers; treasurer, John S. Lentz; executive committee, R. E. Smith, J. C. Fritts, and H. T. Bentley.

President-elect D. F. Crawford: Gentlemen, it has been my pleasure to have served you for several years as a member of your executive committee, and this evidence of your confidence in me, in electing me as your president, is indeed very gratifying. I find it difficult to express my appreciation. I trust that I will be able, with your splendid co-operation, to carry on the work and further the work of this important association as well as it has been done by very able predecessors. I think you all realize the important questions that are coming before the association during the next year, and I hope that we will be able to, at least, make reports that will dispose of some of them at the next convention. I again wish to express my appreciation.

D. R. MacBain: In view of the valuable work that has been done by the retiring president, who has done perhaps more than any other individual in the way of traveling long distances to attend the meetings of this association, I propose a rising vote of thanks to him for his untiring efforts in behalf of the association.

(The motion was seconded by a number of members.)

President-elect Crawford: Won't you please rise and let us show how we all feel? (Everybody arose.)

The Secretary: Mr. President, one of our very active members said this morning that he has been accused of throwing bouquets. I would like to ask the privilege of the floor for this gentleman. He has some more bouquets to throw. I refer to Mr. Brazier, a past-president of the association.

F. W. Brazier: Forty-eight years ago a few prominent car men assembled and formed this association. The work done by these men in standardizing equipment, in the interchange rules, and many other other matters, has placed us second to no other association of railroad men in this country. The reputation of this association is known the world over. It has been presided over by presidents who have filled their positions with credit and honor, and I want to say to you, Mr. Barnum, having been associated with you on the arbitration committee, that I know personally how hard you have worked, and I know of no one who has contributed more dignity, and who has placed the association on any higher plane than you have. I have been a member of the association for quite a few years, and I feel honored that it has selected me to make this presentation speech to you. The association has felt that some emblem should be worn by the past presidents. I only trust, sir, that you will have much pride in wearing this badge. I assure you it is with a great deal of pleasure that I present you with it, and I trust that your descendants will look upon it in the future and say, "This badge was worn by M. K. Barnum, a member of our family, whom we love and honor."

Ex-President M. K. Barnum: I want to thank you for your hearty vote of thanks for my work during the past year, and I want to especially thank you for the beautiful emblem which has just been presented to me through Mr. Brazier, one of your honored ex-presidents. I feel that it has been an unalloyed pleasure to preside over this convention. The earnest interest that has been shown by the members, the importance and thoroughness of the reports, and the businesslike way in which the discussions have been conducted, have made my work easy. In fact, I think the Master Car Builders' Association is far ahead of the United States Congress in the way it handles business.

When I graduated from college, one of the questions that was asked of every member of the graduating class was, what were they going to follow in the way of a business career? Some of them were going to teach school, some of them were going to be ministers, and so on, and my reply was that I was going to be a railroad president. I have not attained that distinction, but I feel that I have exceeded it in being president of the Master Car Builders' Association.

The convention then adjourned.

NOMINATING COMMITTEE FOR NEXT YEAR

At yesterday's session of the Master Car Builders' convention, F. W. Brazier, F. H. Clark, J. J. Hennessey, F. F. Gaines and A. W. Gibbs were elected members of the committee on nominations for the ensuing year.

DRILLING RECORD BROKEN

The world's record in drilling in steel on a standard 6-ft. radial drill has been busted to a "fare-ye-well" on the American 6-ft. radial in Machinery Hall. A 1½-in., type D, Celfor drill was operated at 295 r.p.m., feed .049 in., cutting speed per minute 116 ft. and penetration 14.45 in. per minute. The same result was obtained later with a Detroit drill. The machine is driven by a 25-h.p. motor.

MR. EVANS AND MISS WYNN TO DANCE AGAIN

The pleasure of the convention people who witnessed Thursday evening the fancy dancing of Ernest Evans and Miss Wylma Wynn, will be added to next Tuesday evening, when the same artists again appear under the auspices of the supply men. On Tuesday evening six dances will be given, as follows: hesitation waltz, maxixe, tango, cubist gavotte, variation two-step (Mr. Evans and Miss Wynn's best dance) and the "Half and Half."

CONCERT AND DANCING CONTEST

The concert on the pier Friday night attracted a record-breaking attendance of convention people. The event was an instrumental and vocal concert given by Eugene Engel's orches-

tral band, assisted by the La Favorita quartette, consisting of Katherine Rosenkranz, Julia Q. Robinson, Henry Hotz and Anthony D. McNichol; a soprano solo by Julia Robinson, xylophone solo by Bessie Lewin, caricatures by Mary Door, comedienne and a bass solo by Henry Hotz.

After the concert a contest in "turkey trotting" was held. The prizes consisted of a handsome silver cup, given by the supplymen and a purse of \$50 donated by the Steel Pier management. The judges of the dancing were: F. H. Clark, D. F. Crawford, S. P. Bush, William Schlafge and O. C. Gayley. The dancing received great applause, and at its conclusion the judges announced that the winners were: First Prize, the large silver cup and \$25 in cash, Miss Annette Ryan and Albert Ewing, of Atlantic City. Second Prize, \$15 cash, Miss Reta Murray and her brother Charles, of Atlantic City. Third Prize, \$10 in cash, Miss Helen Fletcher and Charles Carr, of Atlantic City.

GOLF TOURNAMENT

The golf tournament for all the men of the conventions, to be held on the links of the Country Club of Atlantic City, Sunday, June 14, bids fair to be a great success. Up to last evening the following were among the entries received, with the handicaps allotted:

E. H. Bankard.....	20	George T. Johnson.....	25
Bertram Berry.....	—	L. E. Jones.....	15
J. E. Bowers.....	12	B. F. Mallory.....	10
F. O. Bunnell.....	20	G. H. Musgrave.....	15
S. P. Bush.....	11	H. M. Perry.....	25
L. O. Cameron.....	14	B. E. Pollack.....	18
George Chadwell.....	11	W. S. Reeder.....	25
F. H. Clark.....	23	C. N. Replogle.....	20
W. L. Conwell.....	11	G. E. Replogle.....	20
T. C. De Rossett.....	11	G. W. Ristine, Jr.....	17
R. C. Dudley.....	25	M. W. Rosser.....	25
S. O. Dunn.....	23	B. E. Sawyer.....	10
Charles R. Ellicott.....	—	J. S. Sheafe.....	25
F. B. Ernst.....	23	L. B. Sherman.....	14
H. H. Gilbert.....	18	C. W. Somers.....	—
J. P. Gowing.....	25	H. H. Vaughan.....	—
R. H. Gwaltney.....	4	R. C. Vilas.....	8
C. A. Hardy.....	24	E. H. Walker.....	20
C. S. Hawley.....	10	C. H. Young.....	15
E. T. Hendee.....	11	M. K. Barnum.....	20

Entries may be made Sunday at the first tee and the 18 holes may be played either in the morning or afternoon.

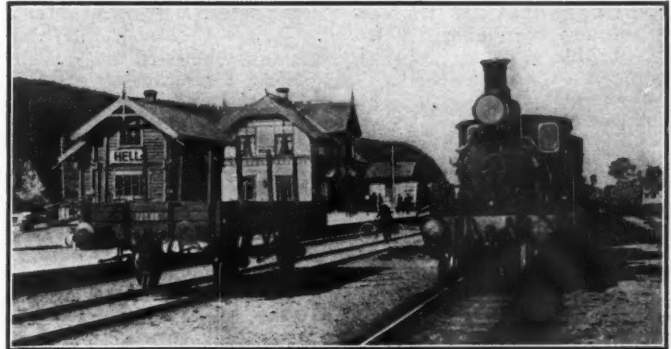
LITTLE INTERVIEWS

H. W. Belnap, Chief Inspector of Safety Appliances of the Interstate Commerce Commission, who is attending the conventions, is much interested in the recommendation made by President Barnum of the M. C. B. Association that each railway retain on its mechanical staff a man who is specially qualified to act as an authority on safety appliances. "This is a wise recommendation," said Mr. Belnap, "and it is to be hoped that the various railways will promptly adopt it. There are 250 parts on every freight car, every one of which must be made and located as required by the specifications of the Interstate Commerce Commission if the law is to be complied with. Every interchange inspector and car repairman should know what these specifications are and be made to act accordingly; and this can be accomplished only by careful instruction and training of the men and careful supervision of their work. Such instruction, training and supervision can be secured only by assigning specialists to them. Unless this is done there will be danger not only that the safety appliance regulations will not be properly complied with, but that in many cases interchange inspectors will take cars out of service which, through ignorance, they think are not properly equipped when, in fact, they are all right. The hindrance to the movement of traffic is as serious when a properly equipped car is held up as when an improperly equipped one is held up, and the one way to prevent delay to cars in interchange is to have all employees responsible in any way for the condition of the cars to be fully informed on the

law. For the best interests of all concerned it is desirable that the closest co-operation regarding this matter be brought about between the representatives of the commission and the railways, and such co-operation can be much better brought about if the roads will assign special men to look after their safety appliances."

Harry A. Norton, vice president of A. O. Norton, Inc., arrived in Boston last week on the Franconia. Mr. Norton has visited almost all parts of the world spreading the good word and engaging in a universal "up-lift."

Having been in almost all parts of the world there was still one spot where he considered an "up-lift" movement would be hailed with delight, in fact the only place "up-



The Railway Station at Hell (Norway)

lifters" have avoided—Hell. With characteristic caution he bought a round-trip ticket for getting back from Hell twice as much fun as going.

"I was very much surprised to find Hell very backward in many respects," said Mr. Norton. "They are building railroads there, and, singular as it may seem, they contemplate rather active summer tourist trade. But for the present Hell, Norway, is not very busy."

In looking about to get a line on celebrities whom we might interview we bumped into Fred Rogers, the genial editor of Machinery. Fred never misses the opportunity of running down for a day or two to visit the exhibit during the conventions. In sparring for an opening we discovered that like Colvin, of the Machinist, he was much interested in woman's suffrage. He expressed himself somewhat as follows:

[Upon reading final proofs it was decided that it would not be wise to let this get into the *Daily*.—THE PRINTER.]

President Barnum, asked for his impressions of the M. C. B. meeting at the close of the session Friday, had these observations to make:

"The attendance and interest manifested by the railroad representatives were undoubtedly greater than have been shown at any previous convention and the entire meeting of four sessions was conspicuous for the earnestness and careful attention given on the part of all present to the reports and discussions. This made the work comparatively easy for the presiding officer and will cause the proceedings to be, if possible, of more than usual value.

"A number of the reports were especially interesting and brought out a full discussion. Rather conspicuous in this respect were the reports on standards, on car trucks, on car construction and on the standard box car, which was supplementary to the latter.

"Probably the one factor which will tend to make this convention a milestone in the records of the Association is the reduction of the number of M. C. B. standard couplers to two, with the certainty that within a year or two one of these will be eliminated by the survival of the fittest and the other adopted as the one standard M. C. B. coupler.

"The presence and attitude of representatives of the Interstate Commerce Commission, prominent among whom were George B. McGinty, secretary; H. W. Belnap, chief inspector of safety appliances, and Frank McManamy, chief inspector of locomotive boilers, were a very special feature of the convention, and the opportunity thus given very many of the railroad men to meet these representatives of the federal government will tend toward harmonizing the work handled by them in the future."

ADDITIONAL MASTER CAR BUILDERS' REGISTRATION

Dillon, S. J., M. M., Penna. R. R.
Grove, William E., Insp. Car Dept., Phila. & Reading, Craig Hall.
Keisel, W. F., A. M. E., Penna.
Kendig, R. B., C. M. E., New York Central & Hudson, Marlborough-Blenheim.
Montgomery, Hugh, S. M. P., Rutland, Shelburne.
Roberts, A. L., M. E., Lehigh Valley, Lexington.
Shoemaker, C. A., Gen. Supt., Gorman American Car Lines, Traymore.
Smith, B. T., Gen. Foreman, W. J. & S. S.
Weitzel, H., Ass't Mach. Sup't, Arizona Eastern, Traymore.
Young, J. P., F. C. D., Mo. Pac., Dunlop.

ADDITIONAL MASTER MECHANICS' REGISTRATION

Allan, Arthur, S. M., The Holden Co., Traymore.
Basford, Geo. M., C. E. R. R. Dept., Jos. T. Ryerson & Son, Marlborough-Blenheim.
Bean, S. L., M. S., A. T. & S. Fe. Shelburne.
Dawson, L. L., S. M. P., Ft. Worth & Denver City, Brighton.
Dillon, S. J., M. M., Penna.
Dunn, J. F., A. G. M., Oregon Short Line, Chalfonte.
Emerson, H., Counseling Eng.
Jacobs, Henry W., Consulting Eng., St. Louis & San Francisco, Marlborough-Blenheim.
Kendig, R. B., G. M. E., N. Y. C. & Hudson, Marlborough-Blenheim.
Mengel, J. C., M. M., Penna. Chalfonte.
Montgomery, Hugh, S. M. P., Rutland R. R., Shelburne.
Quigley, Jos., Retired, C. N. O. & T. P., Pennhurst.
Shepard, L. A., Scullin-Gallagher Iron & Steel Co., Brighton.
Smethurst, T., S. M. P., InterOceanic, 176 S. New York Ave.
Weitzel, H., A. S. M. D., Arizona Eastern, Traymore.

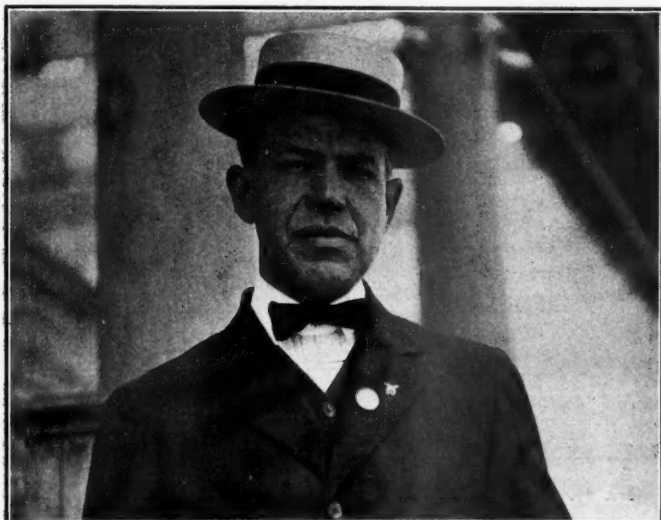
ADDITIONAL MASTER CAR BUILDERS' GUESTS

Allman, W. N., Draftsman Motive Power Dept., Baltimore & Ohio, Arlington.
Anderson, J. B., Chief Clerk to S. M. P., Penna., Runnymede.
Axtell, C. D., General Foreman, D. L. & W., Shelburne.
Banknight, J., Gen. Foreman, A. B. & A.
Bean, S. L., M. S., A. T. & S. Fe. Shelburne.
Bebington, G. A., Gang Leader, Trenton Shops, Penna.
Braucher, P. S., Sup't of Foundries, Philadelphia & Reading, Glaslyn-Chatham.
Brechd, Charles, Draughtsman, Penna.
Butterworth, Jos. A., Purchasing Agent, Southern, Shelburne.
Casey, J. T., Foreman Painter, Penna., New England.
Chamberlain, F. H., Foreman Machine Shop, Penna.
Coates, H. J., Jr., Asst. Eng. Motive Power, Penna.
Cromwell, E. G., M. P. Ins., Penna., Pennhurst.
Cromwell, Harry C., Draftsman, B. & O., Arlington.
Cromwell, J. E., M. P. Ins., B. & O., Arlington.
Davis, W. L., Foreman, Penna., Lexington.
Deems, W. A., M. M., Pullman, Haddon Hall.
Demarest, G. L., S. Keeper, C. R. R. of N. J., Alamac.
Dobson, J. D., Secy. to Gen. Supt. M. P., B. & O., Bouvier.
Emerson, H., Counseling Eng.
Engard, Albert C., Capt. U. S. Navy, Bothwell.
Everett, J. T., Chief Elec., Lo. Ry.
Fenske, F. P., Clerk, Penna., Lexington.
Finen, F. W., Machine Shop Foreman, Long Island.
Fisher, C. D., Foreman P. R. R., Bouvier.
Foultz, T. F., Elec. Eng., Washington Terminal.
Frazee, W. H., Requisition Clerk, Penna., Colonial.
Frazee, W. W., West Jersey & Seashore.
Garriques, H. H., Supt., Penna.
Gearhart, J., Foreman Painter, Penna., Dunlop.
Harrold, I. A., Elec. Foreman, D. L. & W., Traymore.
Hauser, Percy, Foreman, Penna.
Hayes, Burton, A. G. S.
Hayes, Harold, A. G. S.

Haynes, J. W., Car Agent, C. & L., Jackson.
Heald, W. E., Supt. Construction Elec. Dept., B. & O., Abby.
Healy, M. E., Asst. Foreman M. P. Dept., B. & O., Raymond.
Hendricks, R., Foreman, Penna., Ardmore.
Hepwood, Charles F., Secy. to S. M. P., D. & H., Pennhurst.
Herbert, W. A., Engine House Foreman, Penna.
Herr, Edwin D., Machinist, W. J. & S. S.
Hertzler, S. M., Special Engineer Middle Div., Penna.
Hughes, S. W., Gen. Foreman Car Repairs, Phila., Balto. & Wash., Ardmore.
Johnson, E. E., Chief Clerk Mch. Eng., B. & O., Arlington.
Johnson, E. Y., Machinist, B. & O., Arlington.
Keirn, W. H., Foreman, P. B. & W., Shelburne.
Kilborn, Jas. E., P. A., Rutland, Shelburne.
Kimball, D. S., Prof. Mech. Eng., Cornell University, Marlborough-Blenheim.
Kleine, Herbert J., Dennis.
Koch, G. B., Gen. Foreman, Penna., Traymore.
Knepper, George E., Draftsman Office M. E., Penna.
Lattimore, W. G., Foreman Car Shops, P. & R., Silverdale.
Loosen, Jno. R., Supt. Motor & Ref. Equipment, Wells-Fargo, Shelburne.
McCann, J. R., Chief Clerk Supt. M. P., Wheeling & Lake Erie, Traymore.
MacFarland, H. B., Eng. of Tests, Atchison, Topeka & Santa Fe, Chalfonte.
McGary, Alex., Chief Electrician, N. Y. C. & H. R., Alamac.
Merrill, Arthur J., Secretary, Southern & Southwestern Ry. Club, Arlington.
Miller, B. E., Master Painter, D. L. & W., Dunlop.
Miller, H. W., General Car Foreman, Staten Island Rapid Transit, Dennis.
Moses, E. P., Chief Car Draughtsman, N. Y. Central & Hudson River.
Mutt, A. S., Bouvier.
Noble, H. G., Asst. Road Foreman of Eng., Penna., Chalfonte.
Pastovius, D. B., Supt. Electric Car Lighting, Penna., Dennis.
Perry, M. R., M. C. B. Inspector, B. & O., Brevort.
Powell, E. J., Electrical Inspector, D. L. & W., Shelburne.
Powell, M. J., Chief Draughtsman M. P. Dept., Grand Trunk, Traymore.
Prendergast, J. F., Master Mechanic, East Broadtop R. R. & Coal Co., Strand.
Rasbridge, Emerson B., Dennis.
Reynolds, D. E., Clerk Purchasing Dept., Bessemer & Lake Erie.
Richardson, F. T., Pur. Agt., International & Great Northern, Marlborough-Blenheim.
Ricketson, W. E., Mech. Eng., C. C. C. & St. L., Marlborough-Blenheim.
Ripka, Frank J., Foreman, Penna., 124 Columbia Pl.
Rommell, C. T., Spec. Insp. Motive Power Dept., B. & O., Craig Hall.
Russell, H. B., Engine House Foreman, P. & R., Arlington.
Salisbury, R. W., Mechanical Engineer, P. & P. Ry., Kender-ton.
Sandhas, H. L., Air Brake Inspector, Phila. & Reading, Lexington.
Schmerling, R., Machinist, W. J. & S.
Scott, G. E., Purchasing Agt., Missouri-Kansas & Texas, Marlborough-Blenheim.
Sheahan, J. T., Son Supt. M. P., Atlantic, Birmingham & Atlantic, Strand.
Shelton, F. M., Supervisor of Loco. Supplies, D. L. & W., Monticello.
Sloan, J. R., Eng. Electric Train Lighting, Penna., Dennis.
Stewart, L., Foreman Car Shops, P. & R., Silverdale.
Thompson, A. W., Vice President, B. & O., Marlborough-Blenheim.
Toomey, T. H., Foreman Erecting Shop, Penna., New England.
Van Patten, W. E., Elec. Engineer, D. L. & W., Traymore.
Voight, Alex. E., Electrical Inspector, A. T. & Sa. Fe., Brighton.
Waite, C. L., Resident Inspector, N. Y. C. & H. R., Devonshire.
Wall, George, Electrician, D. L. & W., Craig Hall.
Watson, D. H., Asst. M. M., B. & O., Strand.
Webb, T. H., Foreman, Seaboard Air Line, Schlitz.
Whitlock, C. E., Supt. Office of General Mgr., Penna.
Williamson, G. B., M. C. B. Inspector, B. & O.
Wilson, Amos, Spec. Instructor, D. L. & W., Lexington.
Winterstun, John, Inspector Interstate Com. Com., Arlington.
Yarwood, J. G., Foreman of Hostlers, Long Island.
Yoder, I. H., Foreman Car Shop, Central R. R. of New Jersey, Silverdale.

Conventionalities

Mrs. Mark A. Ross is expected to join her husband here tomorrow. Until last year, Mrs. Ross had not missed a convention in 16 years.



E. C. Sasser, Master Mechanic, Southern Railway

Both Mr. and Mrs. J. W. Martin, who have attended many conventions, are not with us this year, owing to the serious illness of Mrs. Martin.

L. H. Albers, supervisor of air brakes, New York Central &



A. B. Corinth, General Inspector, Atlantic Coast Line

Hudson River, and president of the Air Brake Association, is attending the convention with his wife.

J. F. Prendergast, master mechanic, East Broad Top Railroad and Coal Company, is attending his twelfth convention this year. He arrived Friday afternoon.

The Hunt-Spiller pants of this year are not like the superheater pants of last year in the respect that when one representative wears them the others have to stay at home.

W. W. Rosser, of the T. H. Symington Company, is not

feeling well and has planned to spend a month in the mountains of Colorado, amusing himself as fancy may dictate.

James Powell, chief draftsman of the Grand Trunk, is on hand for the Master Mechanics' convention as usual. Mr. Powell was recently re-elected as secretary of the Canadian Railway Club.

T. W. Demarest, superintendent motive power, Pennsylvania Lines West, has been busy during the past year telling the Interstate Commerce Commission all about the cost of repairing cars.

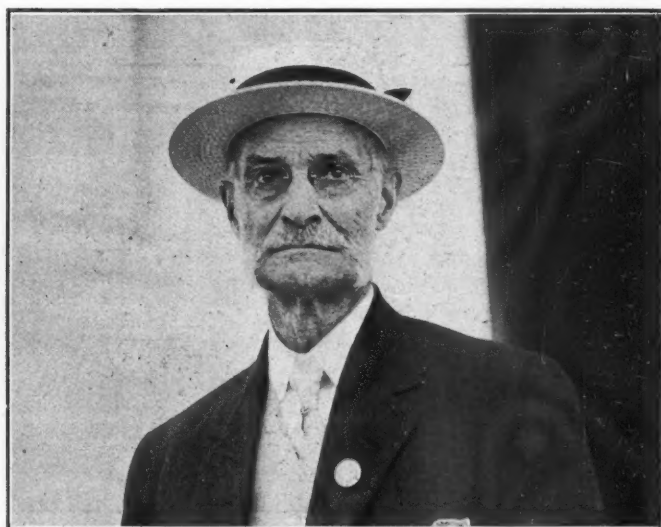
In addition to the chief interchange inspectors that were noted as being present at the Master Car Builders' Asso-



J. R. Schrader, Assistant Master Car Builder, New York Central

ciation, in the Daily of June 12 F. W. Trapnell, of Kansas City, also is present.

C. D. Lide, master mechanic of the Carolina & Northwestern, is attending both conventions this year. Mr. Lide reports that



Jos. Westervelt, Master Car Builder, New York Central & Hudson River

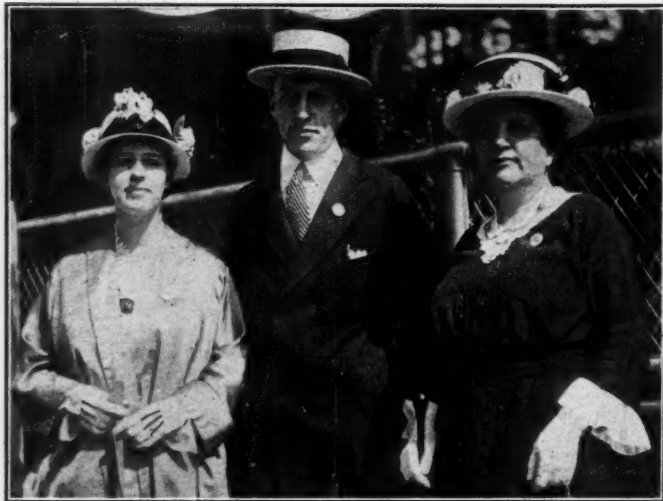
his road is rebuilding all its wooden freight equipment and equipping it with steel underframes.

T. E. Adams, superintendent motive power, St. Louis South-

western, of the "shakerless fires" fame, comes among us this year with a new title. He has been christened "step-father" of the International Railway Fuel Association.

H. J. Small, formerly general superintendent of motive power of the Southern Pacific, will be missed at the meetings this year. His successor, T. W. Heintzelman, is an active participant in the discussions of the convention.

Oscar P. Wilkins, master painter, Norfolk & Western and president of the Master Car & Locomotive Painters' Association, is attending the convention this year with Mrs. Wilkins and their four boys. The oldest is fifteen and the youngest seven.



Right to Left: Mrs. H. T. Bentley, W. H. Bentley, Curtain Supply Company, and Mrs. W. H. Bentley

Mr. and Mrs. E. R. Hibbard and their son, Howard Hibbard, are combining the business and pleasure of the conventions with the pleasure of an eastern trip. They arrived in Atlantic City Tuesday and are guests at the Marlborough-Blenheim.

C. J. Wymer, general car foreman, Belt Railway, and president of the Car Foremen's Association of Chicago, is attending the convention. Mr. Wymer is also chairman of



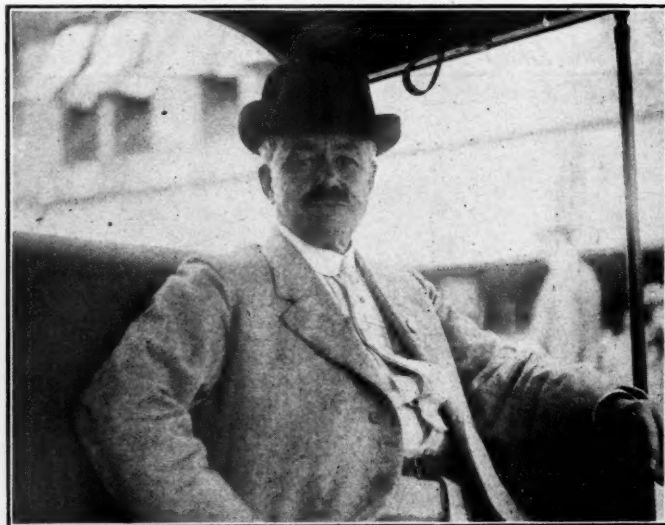
T. E. Adams, Superintendent Motive Power, St. Louis Southwestern

the general safety committee on the Chicago & Western Indiana.

Eugene Chamberlain, manager of the Clearing House, New York Central Lines, is attending his thirtieth convention this

year with Mrs. Chamberlain, who has made nearly as good a record. May the genial face of "Our silver-tongued orator" long be with us.

Mrs. Albert C. Ashton, together with Mother Ashton, are at the Marlborough-Blenheim again this year. The younger Mrs. Ashton has not been over well for some time; but she man-



Ira C. Hubbell, Buyer, Kansas City, Mexico & Orient

ages to brace up in good shape as the time for holding these conventions approaches.

R. J. Turnbull, mechanical superintendent of the Missouri Pacific, says that the crop prospects on his line are wonderful. The fine wheat crop in that territory is made, and the Missouri Pacific is already holding 2000 cars in readiness for the rush of business.

Edward L. Kent, who was appointed sales manager of the



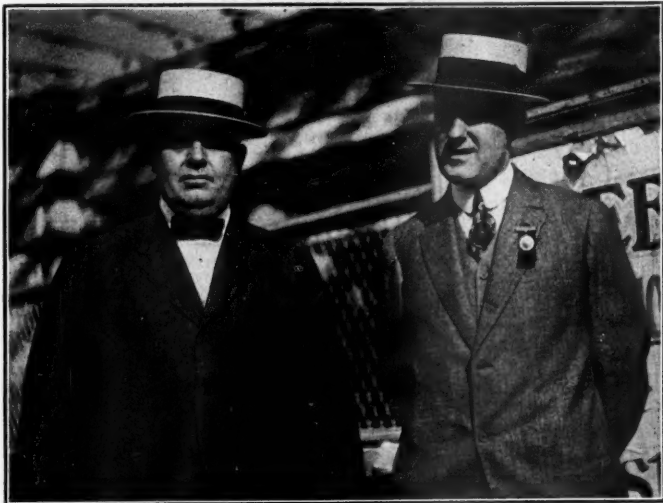
J. N. Hampton, Foreman Car Department, Atlantic Coast Line

railroad department of the Pyrene Manufacturing Company, during the past year, is attending the conventions with his wife for the first time. Mr. Kent was formerly with the Blau Steel Construction Company.

G. E. Scott, purchasing agent of the Missouri, Kansas & Texas, is attending the conventions with his bride. Mr. and Mrs. Scott are quartered at the Marlborough-Blenheim. Mrs. Scott is enjoying her first railway convention and this is Mr. Scott's first convention as a purchasing agent.

G. E. Scott, purchasing agent of the Missouri, Kansas & Texas, arrived on Friday and expects to remain for a few days. During the past year he has been married and Mrs. Scott, who is attending the conventions with him, is very much interested in looking over the equipment which George spends the railroad company's money for.

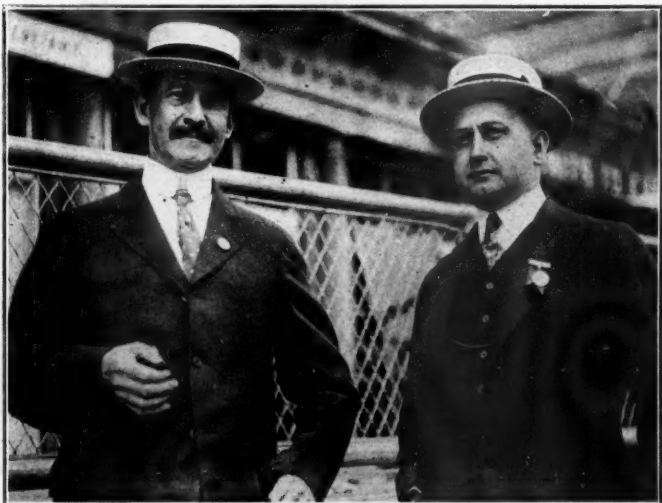
G. W. Wildin, mechanical superintendent of the New



Left to Right: W. H. Dooley, Superintendent Motive Power, Queen & Crescent, and P. A. Bevan, American Vanadium Company

Haven, is unable to attend the conventions this year because of a press of work in the car department. Efforts are being made to get all the bad order cars on the system into good shape as soon as possible and Mr. Wildin is spending most of his time at the Readville shops supervising the work.

D. R. MacBain, superintendent motive power, Lake Shore



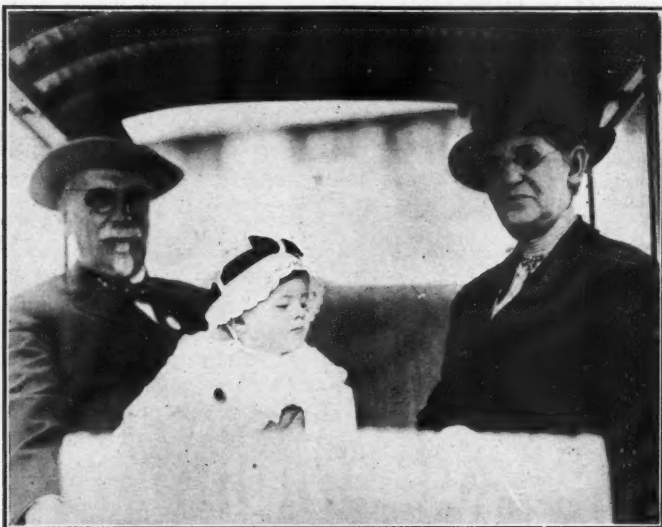
Left to Right: A. Telford, Purchasing Agent, Queen & Crescent Route, and C. L. McMaster, Pratt & Lambert Varnish Company

& Michigan Southern, is certainly in line for some excellent training in parliamentary law. This year he will preside as president of the Master Mechanics' Association; next year he will act in the same capacity at the International Railway Fuel Association, and in 1916, if the custom is followed, he will be president of the Master Car Builders' Association.

The commotion in the European dining room of the Marlborough-Blenheim on Friday morning was due to a dispute between W. English Wilkinson and Jack Turner as to who shall

pay the breakfast check. It seems that for two consecutive mornings Wilk had left both Jack and the check at the table and had forgotten to return; so in his endeavor to prevent Wilk from making it three straight, Jack came within an ace of upsetting the table.

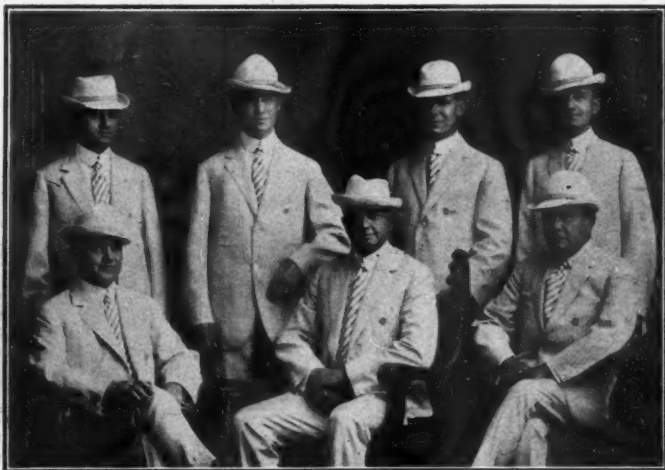
J. F. Dunn, after a service of forty years on the Oregon Short Line, has resigned his position, that of superintendent of motive power, and is slowly recovering his health. In company with Mrs. Dunn and their daughter, Miss Edna Dunn, Mr. Dunn is attending the conventions. After an



William Garstang, Retired General Master Car Builder, Big Four; Mrs. Garstang and Their Grandson, Felix Monroe Robbins, Jr.

honorable service record of so many years the many friends of Mr. Dunn will welcome the news that he will take a needed rest. The Dunn family is registered at Chalfonte.

The Cambria Steel Company is not an exhibitor only because it believes that the track space is so far from the pier that the exhibits do not receive the attention they deserve.



THE HUNT SPILLER SEPTETTE

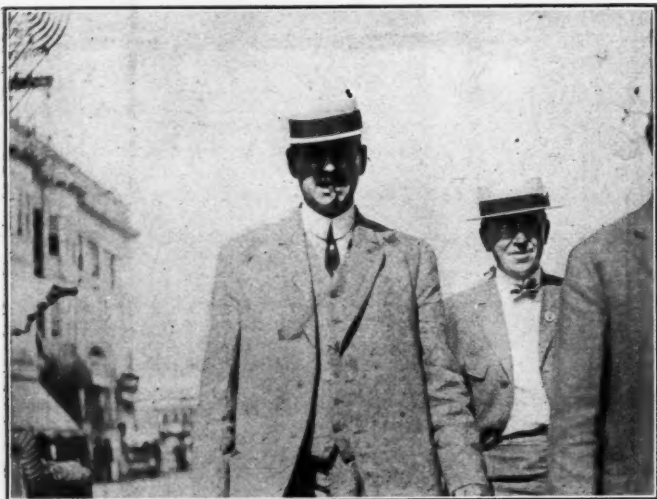
Top Row, Left to Right: J. M. Monroe, A. B. Root, Jr. (Mechanical Engineer), V. W. Ellet and E. J. Fuller.

Bottom Row: J. G. Platt (Sales Manager), W. B. Leach (President), Frederic Parker (Vice-President)

However, the company is well represented by J. Leonard Replogle, vice-president and general manager of sales; M. G. Baker, assistant general manager of sales; W. S. Ottinger, Philadelphia, sales manager; L. B. Morris, New York, sales manager, and E. H. Bankard, Jr., salesman in the Chicago office.

J. J. Hennessey, master car builder, Chicago, Milwaukee & St. Paul, reports fairly good times up at Milwaukee. The passenger car department is working full time and the freight car repair department 8 hours a day for six days a week. Mr. Hennessey attended his first convention in 1887, and up to the present time has only missed one, that being in 1889. He was president of the M. C. B. Association in 1902 at Saratoga Springs. Mr. Hennessey has been chairman of the arbitration committee for about 10 years and has many patented devices in car construction to his credit.

The Philadelphia & Reading recently placed in service a number of eight-wheel passenger locomotives which were



D. R. MacBain, Superintendent Motive Power, Lake Shore & Michigan Southern

designed under the direction of S. G. Thomson, superintendent of motive power and rolling equipment and built by the Baldwin Locomotive Works. The passenger service on the Reading is of a nature in which eight-wheel engines can be used to advantage and these locomotives are of unusual interest. Mr. Thomson also reports that the non-

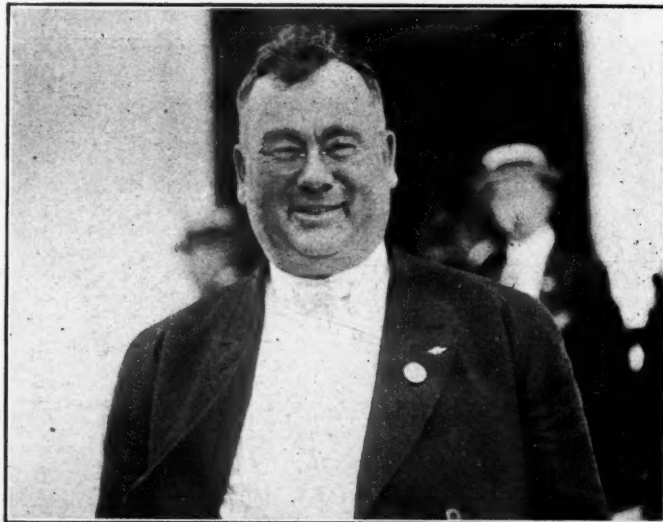


Left to Right: F. H. Stark, Superintendent Rolling Stock, Montour Railroad, and F. W. Dickinson, Master Car

Builder, Bessemer & Lake Erie
superheater Mikados which were placed in heavy freight service on the Reading during the past year are giving excellent results.

F. N. Hoffstot, president; Charles A. Lindstrom, assist-

ant to president; J. B. Rider, general manager, of the Pressed Steel Car Company, and N. S. Reeder, vice-president Western Steel Car and Foundry Company, arrived at the Marlborough-Blenheim Friday morning at 10.30 o'clock in an automobile. It is reported that they left Pittsburgh in the automobile at 8 o'clock Thursday evening, thereby



Jno. L. Hodgson, Master Car Builder, Grand Trunk Pacific

making a remarkable night run. James D. Rhodes, of the National Car Wheel Company, saw them arrive and vouches for the record run. Messrs. Gayley, MacEnulty and Postlethwaite were asked for confirmation, but they were non-committal.

Frank H. Cunningham, until a few days ago inspector of stokers on the Norfolk & Western, is attending his first con-



H. F. Grewe, Master Mechanic, Wabash Pittsburgh Terminal Railway

vention this year. He is now connected with the Standard Stoker Company, as field engineer. Mr. Cunningham is a graduate, in mechanical engineering, of the Virginia Polytechnic Institute and served his apprenticeship on the Norfolk & Western before entering college. Since his graduation he has been successively machinist, material inspector and assistant engineer of tests, and in 1911, when the first stoker was put in operation on this road, he was placed in charge of locomotive stokers. He has recently had 92 stokers under his control, including four different makes.

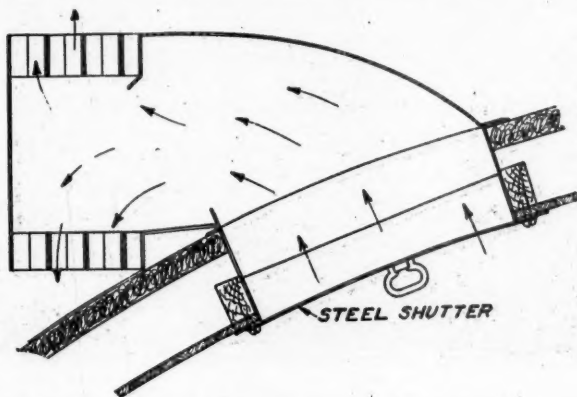
CEILING FAN FOR PASSENGER CARS

The Safety Car Heating & Lighting Company has recently produced an electric ceiling fan which includes an auxiliary device for directing the air currents produced by the revolving blades of the fan. A set of air deflecting planes is located below the fan blades and is revolved at a speed of about ten revolutions a minute, so that the breeze produced at a fixed point in the car is not constant, but occurs at intervals of about twenty per minute, but of sufficient velocity to keep the air in motion. It is claimed that by this means the effect of the fan is made to cover a large area, instead of being concentrated in a strong current directly below the fan.

These fans are designed to be utilized in combination with lighting fixtures, thereby eliminating the objectionable appearance and double cost of fans and electric fixtures separately installed in the car.

UTILITY HONEYCOMB VENTILATOR

The illustration shows the Utility honeycomb ventilator designed for application to arch roof cars. The method of operation is the same as that of the clere-story exhaust ventilator exhibited last year. The principal difference lies in the adapta-



Exhaust Ventilator for Arch Roof Cars

tion of the ventilator to the arch roof type of car construction. It may be seen at the booth of the Railway Utility Co.

STEEL DOOR FOR BAGGAGE CAR

A light and rigid steel door construction is embodied in the steel baggage car door shown in the exhibit of the Acme Supply Company, Chicago. It consists of two sheets of steel with special corrugations, riveted and welded together in such a manner that the form of fastening is concealed. The whole door is dipped in enamel and baked repeatedly, so that it will not rust.

AGASOTE.—A very handsome coupé body is being exhibited at the booth of the Pantasote Company. It is made entirely from agasote and was designed to demonstrate the ability of this material to be formed into shapes involving many compound curves.

STEAM HOSE COUPLER WITH GRAVITY TRAP.—The Gold Car Heating & Lighting Company has brought out a new steam hose coupler which is on exhibition at its booth. It is fitted with a new gravity trap safety device which prevents scalding of trainmen or other employees when uncoupling, and does away with the necessity of uncoupling hose to prevent freezing when cars are laid up. The gasket is fitted with a spring of special design which, it is claimed, allows it to oscillate in all directions, maintaining a tight joint; and which prevents it from loosening out of the coupler.

INTERMEDIATE COUPLER

A coupler that has been designed to meet the conditions of exceptionally heavy service at a weight not greatly in excess of the average M. C. B. coupler, is on exhibit at the booth of the Gould Coupler Company. This coupler is interchangeable with the standard 5 inch x 7 inch shank and is claimed to be fully equal in strength to the present standard 1 1/4 inch x 5 inch wrought yoke strap. It is provided with a positive kicker, lock set and knuckle stop; the knuckle, which is of very rugged design, is provided with heavy pulling shoulders which interlock with corresponding shoulders in the head. This relieves the knuckle pin to a great extent of the stresses incident to heavy pulling service. The knuckle pin is 1 5/8 in. in diameter. The lock is a steel block of heavy design and is made in two parts. The lower half, or lock proper, lock sets by gravity on the guard arm side of coupler, while the upper half serves as a guide and operates the kicker which is of the bell crank type. Over seven square inches of locking surface is provided.

EDMAN BOX CAR DOOR

The Railway Appliances Company, Chicago, has recently placed on the market a new type of door for box cars. It has been tried out in service for some time and has been giving good results. Special attention has been given to make it weather-proof, grain-proof, economical in first cost and in maintenance, and such that it may be readily opened under all conditions. The photographs show this door ap-



Fig. 1—Edman Steel Door Released from Door Opening

plied to a refrigerator car and to a car loaded for grain. The fundamental principle of the door is that it is placed directly over the door opening and is forced to a fit by the side flaps of the refrigerator car door, as shown in Figs. 1 and 2. This insures an air-tight joint on all four sides of the door, and, in grain cars, eliminates the leakage of grain

from the inside, or the possibility of water or moisture working by the edges of the door into the inside.

The side flaps are held in the closed position by two arms extending from them to the locking device in the center of the door, the method of locking being shown in Fig. 2. The ends of these arms rest in a casting at the center of the door and are held in that casting by the locking lever, which is turned as shown in Fig. 3. This lever is provided with a sealing pin, which fits into the casting above mentioned, and to which it is sealed by the ordinary car seal. The box cars are provided with an auxiliary door at the top for loading grain and for inspection. Where these are used an extension to the locking lever is provided, which locks the auxiliary doors closed when shifted to the vertical position, and both the main door and the auxiliary doors are locked under one seal.

These doors are suspended by hangers hinged to the doors about one-third down from the top, and the runway is offset a sufficient distance from the side of the car to allow the door, of thicknesses ranging from 4½ to 8 in., to slide freely by the side of the car. A chain is provided at the bottom of the door to keep it from swinging out too far from the side of the car, the other end of this chain running in a rod, as shown, so that no matter whether the

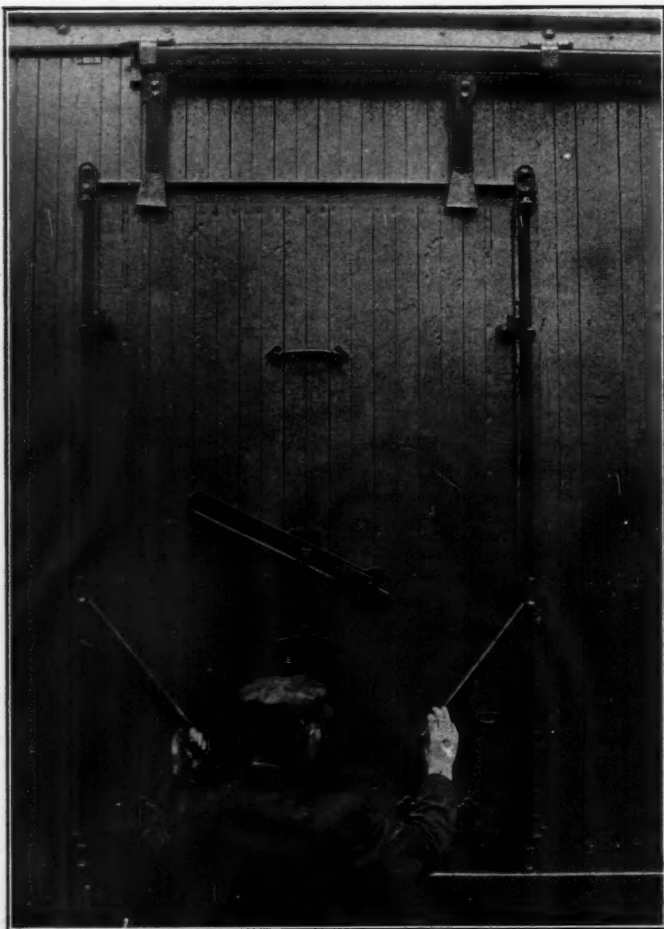


Fig. 2—Method of Locking and Unlocking Refrigerator Door

door is opened or closed, it is impossible for it to swing out beyond a certain distance. This feature is of decided advantage from a safety first standpoint, as it eliminates the possibility of the door swinging out and side-swiping passing trains.

The Edman door may be applied to any type of box car, whether old or new, and can be used for all classes of freight. When used on grain cars no temporary grain doors

will be necessary, as it will not leak, and also, on account of its design, may be readily opened. Grain samplers will find it an easy matter to obtain samples of the grain through the auxiliary door at the top, without having to open the main door.

When applied to refrigerator cars the door posts are rabbeted with a rubber insulation, no insulating being necessary on the doors, and by this design it is possible to make a tight joint on all four sides. It also eliminates the trouble

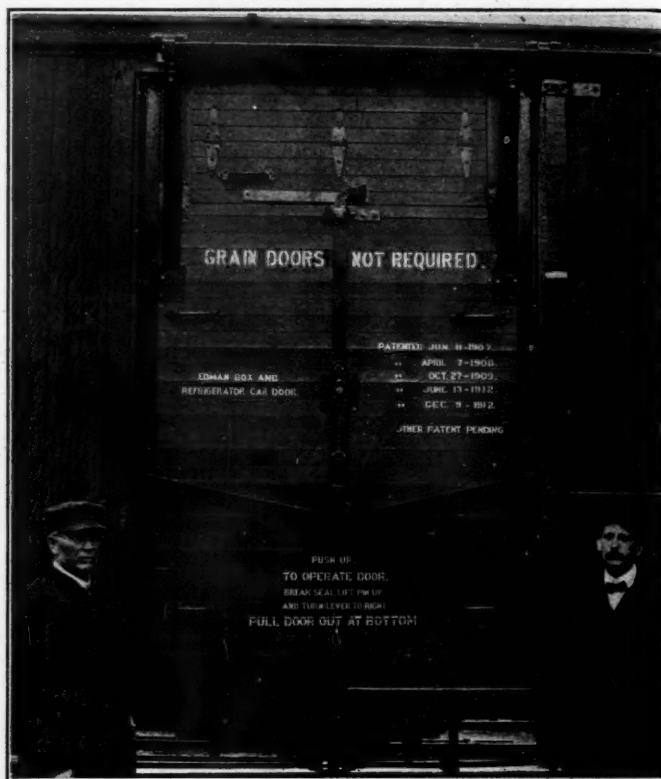


Fig. 3—Showing the Edman Wooden Box Car Door Locked

of opening the folding doors at platforms that extend above the bottom of the door, as these doors may be opened within a very small clearance. The construction of refrigerator cars at the door opening may be made much simpler where this door is used. Fig. 3 shows a steel grain door which requires very little clearance.

THERMOMETER CONTROL OF STEAM HEAT.—The Gold Car Heating & Lighting Company is exhibiting a system of thermostatic control for steam heating systems which is said to be very economical in steam consumption. It has been subjected to a number of comparative tests during the past season in connection with vapor and straight steam systems.

ELECTRIC ARC WELDING.—Demonstrations of electric arc welding and cutting may be seen at the booth of the U. S. Metal & Manufacturing Company. Special provision has been made to show the application of this process to many of the most important jobs in railroad shops. For performing this work, in addition to the specially constructed heavy duty welding generator and motor, there is also a main control panel for the machine and a separate control panel for each welding surface. On each of the welding handles is mounted a patented automatic control equipment for the welding circuit. This device is for the double purpose of protecting work from burning when starting the arc and protecting both work and machine from overload either when working or at the time of drawing the arc. This is claimed to be the only system based upon this double protection apparatus and work. The system is the product of the C. & C. Electric & Manufacturing Company.